UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended DECEMBER 31, 2021
OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE TRANSITION PERIOD FROM TO**
Commission File Number 001-40602

ERASCA, INC.

(Exact name of Registrant as specified in its Charter)

Delaware	**83-1217027**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
10835 Road to the Cure, Suite 140 San Diego, CA	**92121**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (858) 465-6511

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.0001 par value per share	ERAS	Nasdaq Global Select Market

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES ☐NO ☒

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. YES ☐ NO ☒

Indicate by check mark whether the Registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES ☒ NO ☐

Indicate by check mark whether the Registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit such files). YES ☒NO ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
Emerging growth company	☒		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES ☐ NO ☒

The aggregate market value of the Registrant's common stock held by non-affiliates of the Registrant was approximately $1.1 billion as of the closing of the Registrant's initial public offering on July 20, 2021 (based on the closing price of $19.23 per share on the Nasdaq Global Select Market as of such date).

The number of shares of Registrant's Common Stock outstanding as of March 17, 2022 was 121,592,318.

DOCUMENTS INCORPORATED BY REFERENCE

Certain sections of the Registrant's definitive proxy statement for the 2022 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Form 10-K are incorporated by reference into Part III of this Form 10-K.

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PART I

Forward-Looking Statements and Market Data

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act), and Section 27A of the Securities Act of 1933, as amended (the Securities Act). All statements other than statements of historical facts contained in this Annual Report on Form 10-K, including statements regarding our future results of operations and financial position, business strategy, research and development plans, the anticipated timing, costs, design and conduct of our ongoing and planned preclinical studies and planned clinical trials for our product candidates, the timing and likelihood of regulatory filings and approvals for our product candidates, our ability to commercialize our product candidates, if approved, the impact of the COVID-19 pandemic on our business, the pricing and reimbursement of our product candidates, if approved, the potential to develop future product candidates, the potential benefits of strategic agreements and our intent to enter into any strategic arrangements, the timing and likelihood of success, plans and objectives of management for future operations, and future results of anticipated product development efforts, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. This Annual Report on Form 10-K also contains estimates and other statistical data made by independent parties and by us relating to market size and growth and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. In addition, projections, assumptions and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk.

In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “expect,” “plan,” “anticipate,” “could,” “intend,” “target,” “project,” “contemplates,” “believes,” “estimates,” “predicts,” “potential” or “continue” or the negative of these terms or other similar expressions. The forward-looking statements in this Annual Report on Form 10-K are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this Annual Report on Form 10-K and are subject to a number of risks, uncertainties and assumptions, including those described in Part I, Item 1A, “Risk Factors.” The events and circumstances reflected in our forward-looking statements may not be achieved or occur, and actual results could differ materially from those projected in the forward-looking statements. Moreover, we operate in an evolving environment. New risk factors and uncertainties may emerge from time to time, and it is not possible for management to predict all risk factors and uncertainties. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise. All forward-looking statements are qualified in their entirety by this cautionary statement, which is made under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

This Annual Report on Form 10-K includes our trademarks as well as trademarks, tradenames and service marks that are the property of other organizations. Solely for convenience, trademarks and tradenames referred to in this Annual Report on Form 10-K appear without the ® and ™ symbols, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights, or that the applicable owner will not assert its rights, to these trademarks and tradenames.

We maintain a website at www.erasca.com, to which we regularly post copies of our press releases as well as additional information about us. Our filings with the Securities and Exchange Commission (SEC) are available free of charge through our website as soon as reasonably practicable after being electronically filed with or furnished to the SEC. Information contained in our website does not constitute a part of this report or our other filings with the SEC.

Risk Factor Summary

Below is a summary of the principal factors that make an investment in our common stock speculative or risky. This summary does not address all of the risks that we face. Additional discussion of the risks summarized in this risk factor summary, and other risks that we face, can be found below under the heading "Risk Factors" in Item 1A of Part I of this Annual Report on Form 10-K, and should be carefully considered, together with other information in this Annual Report on Form 10-K and our other filings with the SEC before making investment decisions regarding our common stock.

- We have a limited operating history, have incurred significant operating losses since our inception and expect to incur significant losses for the foreseeable future. We may never generate any revenue or become profitable or, if we achieve profitability, we may not be able to sustain it.
- We will require substantial additional capital to finance our operations, and a failure to obtain this necessary capital when needed on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our development programs, commercialization efforts or other operations.
- We are early in our development efforts and are only beginning to test our product candidates in clinical trials. If we are unable to successfully develop and commercialize our product candidates or experience significant delays in doing so, our business will be materially harmed.
- Our approach to the discovery and development of product candidates is unproven, and we do not know whether we will be able to develop any products of commercial value, or if competing approaches will limit the commercial value of our product candidates.
- Clinical and preclinical development involves a lengthy and expensive process with an uncertain outcome, and the results of preclinical studies and early clinical trials are not necessarily predictive of future results. Our product candidates may not have favorable results in clinical trials, if any, or receive regulatory approval on a timely basis, or at all.
- Any difficulties or delays in the commencement or completion, or termination or suspension, of our current or planned clinical trials could result in increased costs to us, delay or limit our ability to generate revenue and adversely affect our commercial prospects.
- Use of our product candidates could be associated with side effects, adverse events or other properties or safety risks, which could delay or preclude approval, cause us to suspend or discontinue clinical trials, abandon a product candidate, limit the commercial profile of an approved label or result in other significant negative consequences that could severely harm our business, prospects, operating results and financial condition.
- We rely on third parties to conduct many of our preclinical studies and clinical trials and to manufacture our product candidates, and these third parties may not perform satisfactorily.
- We face significant competition, and if our competitors develop technologies or product candidates more rapidly than we do or their technologies are more effective, our business and ability to develop and successfully commercialize products may be adversely affected.
- Our business is subject to risks arising from COVID-19 and other epidemic diseases.
- Our success depends on our ability to protect our intellectual property and our proprietary technologies.
- The trading price of the shares of our common stock could be highly volatile, and purchasers of our common stock could incur substantial losses.

Item 1. Business.

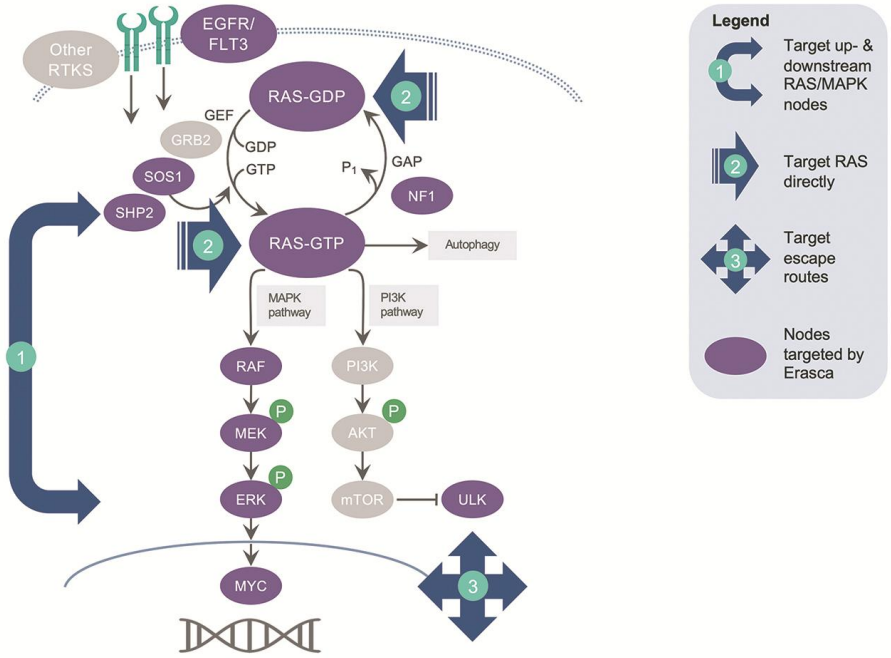
Overview

At Erasca, our name is our mission: to erase cancer.

We are a clinical-stage precision oncology company singularly focused on discovering, developing, and commercializing therapies for patients with RAS/MAPK pathway-driven cancers. Molecular alterations in RAS, the most frequently mutated oncogene, and the MAPK pathway, one of the most frequently altered signaling pathways in cancer, account for approximately 5.5 million new patients diagnosed with cancer globally each year. Our company was co-founded by leading pioneers in precision oncology and RAS targeting to create novel therapies and combination regimens designed to comprehensively shut down the RAS/MAPK pathway for the treatment of cancer. We have assembled what we believe to be the deepest, wholly-owned or controlled RAS/MAPK pathway-focused pipeline in the industry, comprising 11 modality-agnostic programs aligned with our three therapeutic strategies of: (1) targeting key upstream and downstream signaling nodes in the RAS/MAPK pathway; (2) targeting RAS directly; and (3) targeting escape routes that emerge in response to treatment. The target breadth and molecular diversity represented in our pipeline enable us to pursue a systematic, data-driven clinical development effort to identify single agent and combination approaches with the goal of prolonging survival in numerous patient populations with high unmet medical needs.

Our modality-agnostic approach aims to allow us to selectively and potently inhibit or degrade critical signaling nodes with small molecule therapeutics, large molecule therapeutics, and protein degraders. Our purpose-built pipeline includes three clinical-stage programs (ERK and SHP2 inhibitors, which together comprise our first, innovative MAPKlamp, and an EGFR inhibitor), one preclinical-stage program (CNS-penetrant KRAS G12C inhibitor), and seven discovery-stage programs targeting other key oncogenic drivers. In 2023, we expect to have four product candidates in the clinic. In addition, we expect to file an additional investigational new drug application (IND) every 12-18 months through 2026. We believe our world-class team's capabilities and experience, further guided by our scientific advisory board (SAB), which includes the world's leading experts in the RAS/MAPK pathway, uniquely position us to achieve our bold mission of erasing cancer.

Of the approximately 5.5 million new patients diagnosed globally per year with cancers driven by RAS/MAPK pathway molecular alterations, over 90% have limited or no treatment options. While the RAS/MAPK pathway has been well characterized and validated based on multiple compounds approved or in development targeting discrete signaling nodes in the cascade, most of these compounds face resistance and tolerability challenges, highlighting the need for new approaches to target this pathway. We believe that to effectively shut down a pathway that signals as promiscuously as RAS/MAPK, a holistic approach must be taken to target not just individual nodes, but multiple nodes and cooperative mechanisms in parallel. As depicted in the following figure and described below, we are pursuing three therapeutic strategies that may be used in combination with the goal of comprehensively, and perhaps synergistically, shutting down the RAS/MAPK pathway.

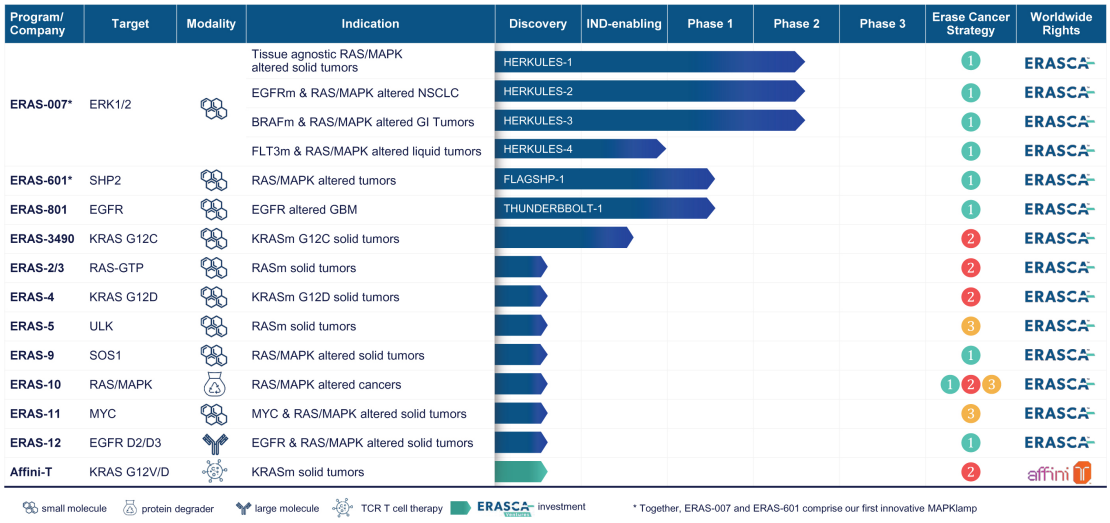


1. ***Target upstream and downstream MAPK pathway nodes with single agents and combinations intended to clamp these oncogenic drivers.*** Our first strategy to erase cancer is a novel MAPKlamp that targets upstream and downstream nodes, initially SHP2 (ERAS-601) and ERK (ERAS-007), respectively, to shut down, or "clamp," the signaling of various oncogenic drivers, such as receptor tyrosine kinases (RTKs), NF1, RAS, RAF, and MEK alterations, trapped in between any nodes involving this pathway. With our MAPKlamp approach, we hope to induce tumor regression in RAS/MAPK pathway-driven cancers, while also blocking their main escape routes that lead to tumor resistance. We are also discovering and developing single agent and combination approaches to target other upstream nodes that impact the RAS/MAPK pathway such as EGFR (ERAS-801 and ERAS-12), an RTK that represents a key escape route for RAS/MAPK signaling, and SOS1 (ERAS-9), a guanine nucleotide exchange factor that enables RAS to cycle from the inactive GDP state to the active GTP state.

2. ***Target RAS, the midstream MAPK pathway node, directly with single agents and combinations.*** We are discovering and developing molecules that have the potential to inhibit RAS in its inactive GDP state (RAS-GDP) as well as its more prevalent active GTP state (RAS-GTP). Utilizing our in-house discovery efforts employing structure-based drug design, we are developing proprietary central nervous system (CNS)-penetrant inhibitors of KRAS G12C (ERAS-3490), which is the only RAS isoform and mutation that is more commonly present in the inactive RAS-GDP state. We are also developing proprietary compounds against KRAS G12D (ERAS-4), which is more commonly found in the active RAS-GTP state and is the most prevalent KRAS mutation. Our approach to targeting other RAS isoforms and mutations that are found more commonly in the RAS-GTP state is based on the foundational discoveries of one of our co-founders, Dr. Kevan Shokat, a world-renowned pioneer of novel therapeutic approaches to targeting key signaling pathways such as RAS/MAPK in cancer. We entered into an exclusive worldwide license agreement with University of California San Francisco (UCSF) for certain intellectual property derived from Dr. Shokat's work related to RAS-GTP, which guides our ERAS-2/3 programs.

3. ***Target escape routes enabled by other proteins or pathways to further disrupt RAS/MAPK pathway signaling.*** RAS-driven cancers utilize escape routes, namely cooperative mechanisms, to develop resistance. As an example, RAS-driven cancers can become dependent on autophagy, which becomes constitutively active and represents a potential escape route for metabolically active tumors such as pancreatic ductal adenocarcinoma. By targeting ULK (ERAS-5), a key regulator of autophagy, in combination with our RAS targeting agents, we aim to shut down this potential escape route for RAS-driven cancers. We also are actively pursuing various ways to further disrupt RAS/MAPK pathway signaling by degrading key proteins (ERAS-10). Finally, MYC is a transcription factor and oncogene that is overexpressed in the majority of human cancers and a key enabler of RAS/MAPK pathway signaling at the transcriptional level. We are discovering novel approaches to targeting MYC (ERAS-11).

To pursue these therapeutic strategies, we have assembled and are developing what we believe is the deepest pipeline targeting multiple signaling nodes to shut down the RAS/MAPK pathway. We intend to study these agents either alone or in rational combinations across multiple relevant tumor types. The following table summarizes our current, wholly-owned or controlled, modality-agnostic pipeline to eradicate RAS/MAPK pathway-driven cancers, and programs that arise from an investment made by Erasca Ventures, LLC (Erasca Ventures) in a third party.



Our lead product candidates are ERAS-007 (our oral ERK1/2 inhibitor) and ERAS-601 (our oral SHP2 inhibitor), which together comprise our first MAPKlamp. The extracellular signal-regulated kinases (ERK), ERK1 and ERK2, belong to a family of serine-threonine kinases that regulate cellular signaling, and comprise the terminal node of the RAS/MAPK pathway. ERK proteins propagate signaling for multiple cellular functions involved in cell growth and differentiation, which are often overactivated in RAS/MAPK pathway-driven cancers. We in-licensed ERAS-007 from Asana BioSciences (Asana) based in part on preclinical studies that demonstrated the highest potency and longest target residence time of ERK inhibitors of which we are aware. ERAS-007 has been evaluated as a single agent in a Phase 1 clinical trial in patients with advanced solid tumors completed by Asana. Forty-nine patients were enrolled and administered ERAS-007 once a day (QD) or once weekly (QW). Objective responses have been observed at doses from 120 mg to 250 mg QW in multiple tumor types (melanoma, salivary gland tumor, non-small cell lung cancer [NSCLC], and thyroid cancer) that all harbor alterations (BRAF, HRAS, and NRAS) in the RAS/MAPK pathway, supporting the development of ERAS-007 QW as a monotherapy or combination therapy in diverse, biomarker-selected tumor types. In this trial, ERAS-007 demonstrated a reversible and manageable adverse event profile.

We are pursuing a broad clinical development plan across multiple tumor types for ERAS-007, which we refer to as our HERKULES series of clinical trials, that will include both monotherapy and combinations with approved and investigational agents, such as RTK, SHP2, RAS, and/or RAF inhibitors. The first four HERKULES Phase 1b/2 proof-of-concept (POC) clinical trials are exploring both tissue agnostic and tissue specific indications in patients with solid tumors and hematologic malignancies, including NSCLC, colorectal cancer (CRC), and acute myeloid leukemia (AML). In May 2021, we dosed the first patient in HERKULES-1, a Phase 1b/2 clinical trial evaluating ERAS-007 as a single agent and in combination with ERAS-601 (our first MAPKlamp) in advanced solid tumors. In September 2021, we dosed the first patient in HERKULES-2, a Phase 1b/2 master protocol clinical trial for ERAS-007 and/or ERAS-601 in combination with various agents in patients with NSCLC. In September 2021, we dosed the first patient in HERKULES-3, a Phase 1b/2

master protocol clinical trial for ERAS-007 in combination with various agents in patients with GI cancers, with an initial focus on advanced CRC. In September 2021, we announced a clinical trial collaboration and supply agreement with Pfizer Inc. (Pfizer) in connection with the HERKULES-3 trial. Under the terms of the collaboration, we are sponsoring and funding the clinical trial and Pfizer is providing its BRAF inhibitor, encorafenib (BRAFTOVI), at no cost. Additionally, in March 2022, we announced a clinical trial collaboration and supply agreement with Eli Lilly and Co. (Lilly) in connection with the HERKULES-3 trial. Under the terms of the collaboration, we are sponsoring and funding the clinical trial and Lilly is providing its EGFR antibody, cetuximab (ERBITUX), at no cost. Finally, we anticipate dosing the first patient in HERKULES-4, a Phase 1b/2 master protocol clinical trial for ERAS-007 and/or ERAS-601 in combination with various agents in patients with hematologic malignancies. The master protocols for each of the HERKULES-2, -3 and -4 Phase 1b/2 clinical trials provide the flexibility to explore additional combinations and expand into other NSCLC, GI cancer and hematological malignancy indications, respectively. While providing POC data, these trials may be expanded to enable potential accelerated approvals in their respective indications.

The second prong of our first MAPKlamp approach, ERAS-601, is designed to be a potent and selective oral inhibitor of SHP2, a convergent node for upstream RTK signaling and a critical “on/off switch” that activates RAS-GTP signaling. SHP2 also drives tumor cell proliferation and development of resistance. ERAS-601 is designed to block oncogenic signal transduction and delay the onset of therapeutic resistance, and thereby serve as a backbone of combination therapy. In the fourth quarter of 2020, we dosed the first patient in FLAGSHP-1, a Phase 1 clinical trial for ERAS-601 in patients with advanced solid tumors.

In February 2022, we dosed the first patient in our THUNDERBBOLT-1 Phase 1 clinical trial for ERAS-801, our CNS-penetrant EGFR inhibitor, in patients with recurrent glioblastoma multiforme (GBM). In the second half of 2022, we expect to file an IND with the US Food and Drug Administration (FDA) for ERAS-3490, the development candidate (DevCan) we nominated from our CNS-penetrant KRAS G12C inhibitor program. We are also advancing seven other programs targeting key oncogenic drivers in the RAS/MAPK pathway, which we will need to successfully progress through discovery and IND-enabling activities prior to advancing these programs into clinical development, if at all.

Our core values, team, and social mission

We are a team of experienced drug discoverers, developers, and company builders who are united by our mission to erase cancer and passionate about creating potentially life-saving precision oncology medicines singularly focused on targeting the RAS/MAPK pathway. Our leadership team has broad and deep experience in oncology, including advancing therapeutic candidates from discovery research to clinical development, regulatory approval, and commercialization. Our core values are embodied by our quest for the CURE:

Dr. Jonathan Lim, our Chairman, CEO, and Co-Founder, has pioneered transformative advancements in precision oncology and drug delivery, including leading Ignyta’s trailblazing pursuit of a global tissue agnostic label for ROZLYTREK, which became the first drug in biopharmaceutical history to achieve the unprecedented triple crown of breakthrough designations with BTD (FDA), PRIME (EMA) and Sakigake (PMDA). He has served as Chairman and/or CEO and founding investor of six biotechnology companies that have collectively achieved global regulatory approval and launch of seven therapeutic products in oncology, immunology, and drug delivery, benefitting thousands of patients worldwide.

Dr. Michael Varney, our Chair of R&D, SAB member, and a member of our board of directors, is a pioneer drug discoverer and biotech leader. His leadership at Agouron resulted in the discovery of multiple currently marketed anti-cancer agents, including XALKORI and INLYTA. As Executive Vice President and Head of Genentech's Research and Early Development (gRED) and a member of the Roche Corporate Executive Committee, he was responsible for all aspects of gRED innovation, drug discovery and development, and built a team-based organization that today contributes to more than 40% of Genentech's development portfolio, including the marketed anti-cancer agents ERIVEDGE and COTELLIC. Under his leadership, gRED teams discovered and developed successful medicines that include VENCLEXTA with AbbVie, the first BCL-2 inhibitor, and POLIVY, an antibody drug conjugate for the treatment of diffuse large B-cell lymphoma (DLBCL).

Dr. Wei Lin, our Chief Medical Officer, was responsible for all development functions and the clinical development of Nektar's pipeline, including advancing bempegaldesleukin into multiple registrational trials and achieving FDA breakthrough therapy designation in metastatic melanoma. Prior to Nektar, Dr. Lin was the global development lead in cancer immunotherapy for lung cancer and head and neck cancer at Roche/Genentech. Under his leadership, his team oversaw 10 registrational studies, completed five positive Phase 3 trials, and achieved three US and EU regulatory approvals for TECENTRIQ, including the first advancement in first-line small cell lung cancer in three decades. He was also the site head for oncology product development for Roche China, where his team achieved multiple additional regulatory approvals for AVASTIN, ZELBORAF, and TARCEVA.

Dr. David Chacko, our Chief Financial Officer, joined us initially as Chief Business Officer from Versant Ventures, where he was a Principal with both investing and operating responsibilities. He helped lead investment opportunities across multiple therapeutic areas and advanced several Versant portfolio companies operationally through company formation, fundraising, corporate and business development, and clinical and regulatory activities. His prior roles at Alcon/Novartis, McKinsey, SR One, and Morgan Stanley bring to Erasca deep experience in strategy, finance, fundraising, business development, and operations.

Many members of our leadership team have worked together previously at Ignyta or Roche/Genentech, or have joined us from other leading companies in the biopharmaceutical and life science tools sectors such as Aragon, Illumina, Lilly, Medivation, Merck, Myovant, Neurocrine, Pfizer, Seragon, Synthorx, and Turning Point, and have worked on numerous oncology drugs that have been approved and launched for the benefit of patients.

Dr. Lim founded Erasca with Dr. Kevan Shokat (Professor and Chair of the Department of Cellular and Molecular Pharmacology at UCSF; Professor of Chemistry at the University of California, Berkeley; and an investigator at the Howard Hughes Medical Institute), who sits on our SAB with other RAS/MAPK pathway experts:

- Dr. Stephen Blacklow is a world expert in SHP2 who helped pioneer development of the first SHP2 inhibitor with Novartis, and is the Gustavus Adolphus Pfeiffer Professor of Biological Chemistry and Molecular Pharmacology, Biological Chemistry and Molecular Pharmacology at Harvard Medical School; a Professor of Pathology at the Brigham And Women's Hospital; a Professor of Cancer Biology at the Dana-Farber Cancer Institute; and the Chair of the Department of Biological Chemistry and Molecular Pharmacology at Harvard Medical School.
- Dr. Karen Cichowski is a world expert in RAS/MAPK pathway signaling, including elucidating how deregulated cell signaling drives tumorigenesis in nervous system, lung, prostate, and breast cancers, combining translational mouse modeling techniques with basic biochemical and cell biological studies, and in identifying novel combination therapies to shut down aberrant RAS/MAPK pathway signaling. She is Professor of Medicine at Harvard Medical School and Professor of Medicine/Genetics at Brigham and Women's Hospital.
- Dr. Ryan Corcoran is a gastrointestinal oncologist with a primary interest in translational oncology research who focuses on targeted therapies directed against mutations commonly found in human cancers, such as BRAF and KRAS mutations. He also is a world expert in ERK, having studied nearly every ERK inhibitor that has been or is being developed in the field. He is also the Director of the Gastrointestinal Cancer Center Program; the Scientific Director of the Termeer Center for Targeted Therapy at Massachusetts General Hospital Cancer Center; and an Associate Professor of Medicine at Harvard Medical School.
- Dr. George Demetri is a world expert in targeted oncology therapies who pioneered the development of GLEEVEC that helped launch the revolution in precision oncology. He is the Director of the Center for Sarcoma and Bone Oncology at the Dana-Farber Cancer Institute; the Director of the Ludwig Center at the Dana-Farber/Harvard Cancer Center; and Executive Director for Clinical and Translational Research at the Ludwig Institute for Cancer Research.

- Dr. Michael Varney is a pioneer drug discoverer and biotech leader and the former Executive Vice President and Head of Genentech's gRED and a former member of the Roche Corporate Executive Committee.
- Dr. Pablo Viciana-Rodriguez is a world expert in the RAS/MAPK pathway whose major focus is the function of the SHOC2 phosphatase complex as a unique regulatory node required for efficient RAS/MAPK pathway activation in the context of diseases such as cancer and RASopathies. He has served as the group leader at the UCL Cancer Institute since 2008 and is a former postdoctoral researcher in Dr. Frank McCormick's lab at the University of California, San Francisco.

At Erasca, while our mission to erase cancer inspires us, we know we can do more to make an even broader contribution to society. To that end, we are pursuing environmental, social, and governance (ESG) initiatives that are aligned with our core mission.

- **Erasca Foundation:** In May 2021, we established the Erasca Foundation, which was funded by the donation of 1,093,557 shares of our common stock (which at the time represented 1% of our capital stock), in conjunction with our initial public offering (IPO). The Erasca Foundation will provide support such as direct research grants, hardship grants, patient advocacy, patient education in underserved populations, and funding for other initiatives to positively impact society.
- **Inclusive clinical trial participation:** We intend to make clinical trials of our product candidates more accessible to diverse patient populations and plan to partner with others who are like-minded in this regard.
- **Drug access program:** We intend to provide patients with access to the drugs we develop and commercialize, including through compassionate use programs if our products are demonstrated to be safe and efficacious. We also intend to increase access to life-changing drugs in underserved populations if our products become commercially available.

Our corporate strategies to erase cancer

Our mission is to erase cancer by eradicating RAS/MAPK pathway-driven cancers. Our corporate strategies to achieve our mission include:

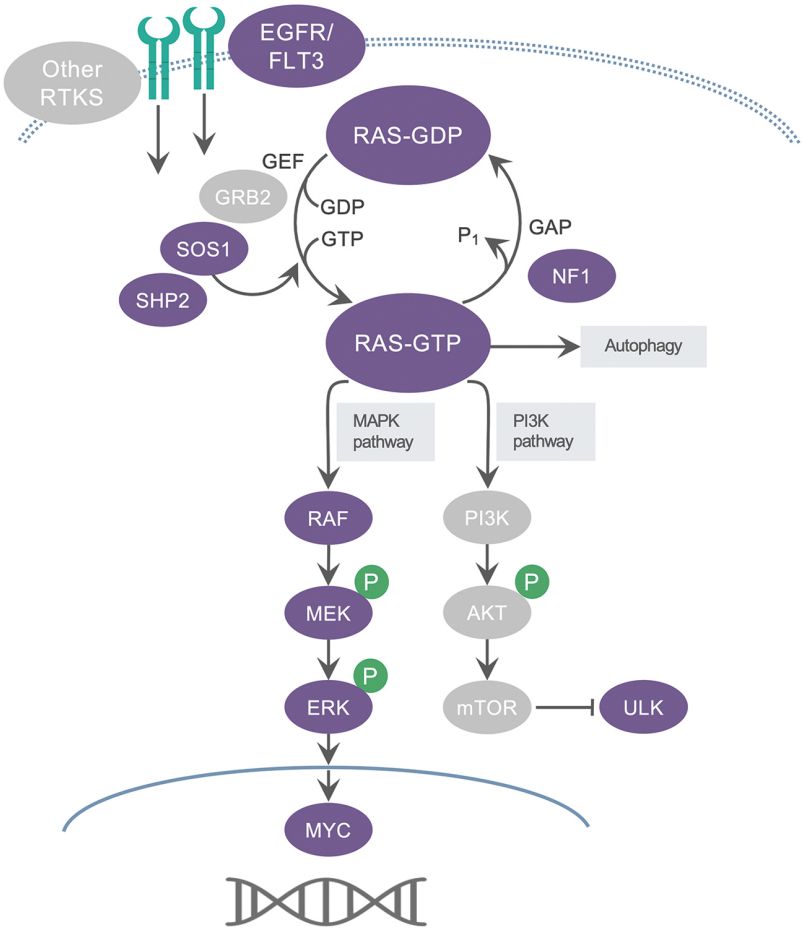
- ***Relentlessly focus on patients and society in our mission to erase cancer.*** There are approximately 5.5 million new patients diagnosed globally per year with cancers driven by RAS/MAPK pathway alterations, over 90% of whom have limited or no treatment options. We are a team of experienced drug discoverers, developers, and company builders who are united by our mission to erase cancer and passionate about creating potentially life-saving precision oncology medicines. In addition, we are pursuing ESG initiatives that are aligned with our core mission.
- ***Develop novel single agent and combination regimens to comprehensively shut down the RAS/MAPK pathway for the treatment of cancer.*** We are pursuing three therapeutic strategies that may be used in combination to comprehensively, and perhaps synergistically, shut down the RAS/MAPK pathway: (1) target upstream and downstream MAPK pathway nodes with single agents and combinations intended to clamp these oncogenic drivers; (2) target RAS directly with single agents and combinations; and (3) target escape routes enabled by other proteins or pathways to further disrupt RAS/MAPK pathway signaling. Our strategic focus on the RAS/MAPK pathway allows us to comprehensively target every critical node in the pathway that could drive cancer signaling.
- ***Advance our deep, modality-agnostic RAS/MAPK pathway-focused pipeline.*** We believe our internally and externally sourced RAS/MAPK pathway-focused pipeline, comprising 11 targeted therapy programs, is the deepest in the industry. Our modality-agnostic approach aims to selectively and potently inhibit or degrade critical RAS/MAPK signaling nodes with small molecule therapeutics, large molecule therapeutics, and protein degraders. ERAS-007 (our ERK inhibitor), ERAS-601 (our SHP2 inhibitor), and ERAS-801 (our EGFR inhibitor) are currently being studied in clinical trials. In 2023, we expect to have four product candidates in the clinic. In addition, we expect to file an additional IND every 12-18 months through 2026. Given the high unmet medical need of the patients we seek to treat, we will evaluate the potential for expedited development and review pathways.

- ***Internally and externally source, on a global basis, potentially disruptive programs targeting RAS/MAPK pathway alterations.*** We have built a productive and efficient internal discovery engine. Our world-class structural biology team generates more than 125 protein structures annually and we use computational biology and computational chemistry to accelerate our discovery activities. While we have strong internal capabilities, we also believe that innovation is a collective, global endeavor and a single platform is unlikely to discover all the best ideas and approaches. We therefore plan to continue to pursue synergistic, in-pathway opportunities, regardless of origin, that meet our high scientific bar. Our extensive network and relationships provide us preferential—and at times exclusive—access to certain assets of interest.
- ***Lead the next revolution in precision oncology.*** The first wave of precision oncology included tyrosine kinase inhibitors such as ROZLYTREK, approved for select tumors that harbor ROS1 or NTRK fusions. While these initial development efforts focused on specific disease-causing alterations in areas of high unmet medical need, these patient populations were modest in size. We believe that to effectively shut down a pathway that signals as promiscuously as RAS/MAPK and that encompasses a range of alterations, a holistic approach must be taken to target not just specific individual mutations, but multiple alterations and cooperative mechanisms in parallel. We are pursuing tissue agnostic and tissue specific labels with dynamically designed biomarker-based basket and umbrella studies, respectively, as well as master protocols, in order to quickly demonstrate clinical proof-of-concept in a variety of tumor types for both single agent and combination approaches.
- ***Evaluate opportunities to accelerate development timelines and enhance the commercial potential of our programs in collaboration with third parties***. We own or control worldwide development and commercialization rights to our entire pipeline of 11 targeted therapy programs (excluding programs in our pipeline that arise from an investment made by Erasca Ventures in a third party). This provides us with the flexibility to explore combinations of our agents with each other, other investigational agents, and/or standard of care therapies. We intend to continue evaluating opportunities to work with partners that meaningfully enhance our capabilities with respect to the development and commercialization of our product candidates. In addition, we intend to commercialize our product candidates in the United States and possibly Europe, where as many as 1.8 million patients are diagnosed annually with RAS/MAPK pathway alterations. We intend to explore partnerships in selected geographies to maximize the worldwide commercial potential of our programs.

Our singular focus on the RAS/MAPK pathway

Background

The RAS/MAPK pathway is one of the most frequently altered signaling pathways in cancer. Molecular alterations in key signaling nodes within the RAS/MAPK pathway have been shown to drive cell proliferation across a wide range of tumor types. As described further below, our wholly-owned or controlled pipeline targets all of the key signaling nodes colored in purple, either directly or indirectly as single agents and in combination in order to prolong survival in a wide range of patient populations.



EGFR/FLT3

EGFR and FLT3 are RTKs, which are proteins that are embedded in the cell membrane and relay growth signals from the outside environment to the cell's internal machinery. At rest, these proteins reside on the cell membrane as inactive monomers. Growth factors secreted by nearby cells bind to specific RTKs, such as growth factor EGF binding to EGFR and FL binding to FLT3, and cause these RTKs to dimerize. Dimerized RTKs activate one another through transphosphorylation of their intracellular regions. Intracellular proteins, such as adapter proteins, bind to these phosphorylated regions and propagate the pro-growth signals within the cell via one or more signaling pathways. Cells express a variety of RTKs so that environmental cues can be relayed to specific cell populations in specific contexts. EGFR mediates pro-growth signaling in skin and in the ducts and outer surfaces of many organs. FLT3 predominantly mediates pro-growth signaling in immature blood cells.

Overactive RTK signaling can result in uncontrolled cell growth and survival that transforms normal cells into cancer cells.

SHP2

SHP2 is a protein tyrosine phosphatase and a key positive regulator of the growth signals from the RTK growth factor receptors to the intracellular signaling pathways (including RAS/MAPK and PI3K) that promote growth and survival of normal cells and cancer cells. As such, SHP2 is a convergent node for upstream RTK signaling: activated SHP2 upregulates ("turns up") the positive signals and downregulates ("turns down") the negative signals in the signaling cascades. SHP2 also serves as a central node in relaying the growth and survival signals from RTKs such as EGFR and FLT3 to RAS/MAPK and other intracellular pathways. SHP2 is an attractive target because SHP2 inhibition ubiquitously blocks the growth signals from multiple RTKs, preventing cancer cells from bypassing the blockade on a specific RTK (e.g., EGFR inhibitor) through activation of other RTK growth factor receptors (e.g., MET).

SOS1

SOS1, or Son of Sevenless-1, is a protein that is recruited to RTK complexes and, in turn, recruits and activates members of the RAS protein family. SOS1 activates RAS proteins by acting as a guanine nucleotide exchange factor (GEF), which facilitates the exchange of the RAS-bound nucleotide from guanine diphosphate (GDP) to guanine triphosphate (GTP). When GDP is exchanged for GTP, RAS adopts an active conformation that enables it to bind and activate downstream effector proteins, such as the RAF family, which ultimately results in RAS/MAPK pathway activation.

NF1

NF1, or neurofibromin, is a protein that accelerates the transition of RAS proteins from the active RAS-GTP state to the inactive RAS-GDP state. NF1 is classified as a GTPase activating protein (GAP) because it boosts the ability of RAS to hydrolyze bound GTP to GDP. Although RAS can autonomously hydrolyze GTP, it is dependent on GAPs such as NF1 to rapidly cycle it from the active state to the inactive state and thereby prevent overactive signaling. If NF1 is inactivated due to a mutation (NF1 loss-of-function mutation), RAS proteins may spend more time in the active RAS-GTP state. This can result in hyperactive RAS/MAPK pathway activation that drives aberrant cell growth and ultimately tumorigenesis. This is observed in patients affected by a genetic disorder caused by somatic mutations in the NF1 gene called neurofibromatosis type 1. NF1 loss-of-function mutations are observed in a variety of cancers, including melanoma and CRC, where they activate RAS/MAPK signaling alone or in conjunction with other RAS/MAPK pathway activating mutations.

RAS

RAS proteins are ubiquitously expressed GTPase proteins. The RAS protein family consists of KRAS, NRAS, and HRAS proteins and acts as the entry node in the MAPK signaling pathway. KRAS is the most abundantly expressed RAS protein followed by NRAS and then HRAS. RAS proteins act as signaling transducers since they are recruited to activated RTK complexes where they are converted into an active conformation (RAS-GTP) that enables them to activate downstream effector proteins, such as RAF proteins. The activation state of a RAS protein is dictated by the phosphorylation state of the bound guanosine: RAS adopts an inactive RAS-GDP conformation when bound to GDP and an active RAS-GTP conformation when bound to GTP. Conversion of RAS into an active conformation is mediated by binding to co-factor proteins, e.g., SOS1, and these co-factor proteins enable the exchange of the RAS-bound nucleotide from GDP to GTP. In the active state, RAS-GTP proteins interact with multiple effector proteins to propagate cell signaling through multiple pathways. For example, activated RAS-GTP proteins interact with RAF proteins to activate MAPK signaling, and PI3K proteins to activate PI3K pathway signaling. RAS can transition from the active state into the inactive state by hydrolyzing its bound nucleotide from GTP to GDP either intrinsically or catalyzed through interactions with co-factor proteins, such as NF1. RAS proteins are the most frequently mutated oncoproteins in cancer. These mutations occur at hotspots, such as amino acid residues 12, 13, and 61, and these hotspot mutations impair RAS's ability to hydrolyze GTP to GDP. As a result, mutant RAS-GTP remains in the active state for prolonged periods of time resulting in hyperactive stimulation of the RAS/MAPK and other pathways.

RAF

RAF proteins are ubiquitously expressed serine-threonine kinases that are a part of the RAS/MAPK pathway and whose activity is regulated by RAS proteins. The RAF protein family consists of ARAF, BRAF, and CRAF (RAF1). In the absence of activated RAS-GTP, RAF proteins assume an autoinhibited conformation in complex with downstream effector proteins, MEK1 and MEK2. RAF proteins can homodimerize (e.g., BRAF-BRAF dimers) or heterodimerize (e.g., CRAF-BRAF dimers). When RAF proteins bind to activated RAS-GTP, they adopt an active conformation that results in activation of their kinase domains. The activated kinase domains then phosphorylate complexed MEK proteins, activating those proteins and releasing them from the RAF-MEK complex. Activated MEK then signals further down the RAS/MAPK pathway. Mutations in RAF proteins, especially in BRAF, have been observed in many cancers, such as melanoma, CRC, NSCLC, and thyroid cancer. For example, the BRAF V600E mutation (a class I BRAF mutation) is frequently observed in melanoma and this mutation enables BRAF to constitutively activate MEK as a monomer. Approved BRAF inhibitors for class I mutations include vemurafenib, dabrafenib, and encorafenib. Class II BRAF mutations enable BRAF to constitutively dimerize and activate MEK. Class III BRAF mutations impair the ability of the mutant BRAF protein to phosphorylate MEK, but class III mutant BRAF proteins can aberrantly dimerize with wildtype RAF proteins and enable their dimerized wildtype RAF partners to activate MEK. To our knowledge, there are no approved inhibitors of BRAF Class II or Class III mutations. A number of inhibitors targeting BRAF Class II and Class III mutations, as well as pan-RAF inhibitors designed to disrupt wildtype RAF signaling, are in development; however, to our knowledge, none have received regulatory approval.

MEK

MEK1 and MEK2 proteins are ubiquitously expressed serine-threonine kinases that are activated by RAF-mediated phosphorylation and signal downstream by activating ERK proteins. MEK1 and MEK2 proteins form complexes with RAF proteins in the inactive state and are recruited as a unit to activated RAS-GTP. RAS-GTP then activates the RAF-MEK complex by binding to RAF, which then activates MEK via phosphorylation and releases from the RAF-MEK complex. Activated MEK then selectively phosphorylates ERK1 and ERK2 proteins, which are the terminal nodes of the RAS/MAPK pathway. Currently approved MEK inhibitors, such as trametinib, binimetinib, cobimetinib, and selumetinib, allosterically bind MEK proteins and inhibit MEK activation, either as free proteins alone or in complex with RAF. The inhibition of RAS/MAPK signaling by MEK inhibitors can result in an upregulation of signaling upstream of MEK due to negative feedback loops within the RAS/MAPK pathway. This increased signaling pressure can overwhelm MEK inhibitors and result in reactivation of MAPK signaling. Most MEK inhibitors are approved in combination with a BRAF inhibitor partially due to their vulnerability of being overwhelmed by the reactivation of MAPK signaling. In this combination, BRAF inhibitors attenuate upstream signaling pressure on MEK inhibitors, and MEK inhibitors further limit downstream MAPK signaling not inhibited by the BRAF inhibitor.

ERK

The extracellular signal-regulated kinases (ERK), ERK1 and ERK2, are ubiquitous serine-threonine kinases that regulate cellular signaling in both physiological and pathological states and comprise the terminal node of the RAS/MAPK pathway. Once activated by MEK, ERK proteins phosphorylate thousands of downstream proteins, propagating RAS/MAPK signaling across multiple cellular functions. In contrast to currently approved allosteric MEK inhibitors, ERK inhibitors in development are ATP-competitive and as a result, their potency is robust against the activated state of ERK. Based on this property, ERK inhibitors potentially can overcome drug resistance mechanisms that involve reactivation of RAS/MAPK pathway signaling, such as a rebound of RAS/MAPK signaling resulting from the alleviation of negative feedback or an upstream RAS/MAPK pathway protein adopting an acquired resistance mutation.

ULK

Autophagy is a metabolic process that cells use to break down and recycle cellular components. This process enables cells to renew cellular components whose functions are impaired due to age or malfunction. Autophagy also serves as a survival mechanism in nutrient deprived conditions, enabling the cell to continue to synthesize critical cellular components. RAS-driven tumor cells reconfigure many of their metabolic processes, including autophagy, to better fuel their growth and survival. Autophagy can act as a resistance mechanism to RAS/MAPK pathway inhibitors by becoming constitutively active and enabling the cell to survive metabolic stresses induced by the inhibition of RAS/MAPK pathway signaling. ULK1 and ULK2 are serine-threonine kinases that control the initiation of autophagy, thereby acting as gatekeepers of autophagy. Combining a RAS/MAPK pathway inhibitor with an ULK1 and/or ULK2 inhibitor can potentially inhibit tumor growth by blocking upregulation of autophagy, a potential escape route or adaptive resistance mechanism to the RAS/MAPK pathway inhibitor.

MYC

The MYC protein (also known as c-MYC) is a transcription factor that regulates the transcription of hundreds of genes that are associated with cell growth. Transcription factors guide the cellular machinery to transcribe specific genes in the nucleus and those transcribed genes are then translated into proteins in the cytoplasm. Transcription factors are regulated by multiple signaling pathways, including RAS/MAPK, and they integrate this signaling information to transcribe genes in a context-dependent manner. Dimerization is required for MYC transcription factor activity and MYC's most frequent dimerization partner is MAX. The activity of the MYC-MAX complex is largely driven by the concentration of MYC protein in the nucleus but other factors, such as the phosphorylation status of MYC, also regulate MYC activity. Given MYC's critical role in regulating genes that drive cell growth, MYC function is dysregulated in 40% of cancers and MYC overexpression is the most frequent form of MYC dysregulation. MYC's role as a transcription factor and not an enzyme has made the development of inhibitors targeting the MYC protein challenging. We believe inhibiting the transcription of MYC and/or MYC-agonists, such as MAX, offers a promising alternative therapeutic approach to reduce MYC activity in tumors where the traditional direct targeting of the MYC protein has failed. MYC and RAS are two of the most commonly dysregulated genes in human cancer and are also downstream effectors for a range of other oncogenic mutations in a variety of tumor types. MYC and RAS also frequently cooperate with each other in tumor development, heightening the urgency of targeting these two pivotal oncogenes.

Our approach is focused on comprehensively silencing the RAS/MAPK pathway by targeting these key signaling nodes, from upstream RTKs to downstream nuclear transcription factors, which have been shown to drive cell proliferation across a wide range of tumor types.

Patient lives at stake annually with RAS/MAPK pathway alterations

At Erasca, we are on a bold mission to erase cancer. The journey will be long, and it won't be easy. But patients with cancer are waiting, and we are eager to make new therapies available as soon as possible. Our mission will involve delivering new therapies to patients in markets where there are limited or no approved therapies, which are referred to as "blue oceans" (adapted from *Blue Ocean Strategy* by Chan Kim & Renée Mauborgne), as well as markets where there are already approved or soon to be approved product offerings, or "red oceans." Of the approximately 5.5 million new patients diagnosed globally per year with cancers driven by RAS/MAPK pathway alterations, over 90% (approximately 5 million patients) are in blue oceans with limited or no treatment options. In the United States and Europe, there are over 1.8 million patients per annum who could be treated with the therapies we are seeking to develop and commercialize. In other parts of the world, we intend to explore partnerships in selected geographies to maximize the worldwide commercial potential of our programs.

New cases estimated worldwide per annum (thousands; numbers may not add up due to rounding)

ALTERATIONS	GBM	HNSCC	NSCLC	CRC	MELANOMA	PDAC	OTHER SOLID TUMORS	AML	US	EU	ROW	GLOBAL
EGFR*/FLT3	125	513	184	338	-	-	-	61	82	222	917	1,220
NF1	25	58	98	35	33	1.9	434	3.2	75	159	453	687
KRAS G12C	-	2.8	240	57	-	5.0	45	0.1	36	82	232	350
Other KRAS	0.5	14.1	252	703	1.6	420	527	4.7	179	470	1,273	1,922
NRAS	0.5	8.4	11.7	72	71	1.0	116	13.8	42	82	170	295
HRAS	0.2	45	7.8	0.4	3.0	0.2	57	-	11	24	80	114
BRAF V600E/K	2	1.9	23	180	93	1.4	158	0.4	63	127	271	461
Other BRAF	0.5	4.7	33	24	9.7	0.8	87	0.2	18	39	103	160
MEK	0.2	1.9	11.7	8.8	4.6	0.2	22	-	5	11	33	50
Co-occurring activating MAPK pathway alterations**	1.4	10.3	62	59	37	7.1	84	3.0	33	69	162	264
US	12	29	93	114	77	51	153	11	542			
EU	34	76	194	398	116	124	324	18		1,285		
Rest of World	109	555	635	964	60	264	1,053	57			3,696	
Global	155	660	923	1,476	253	438	1,530	86				5,522

Blue ocean opportunities Red ocean opportunities

* Post-Osimertinib resistant population shown for EGFRm NSCLC except for SCLC transformation
** Co-occurring activating MAPK pathway alterations exclude EGFR overexpression
Source: SEER database (2020), ECIS database (2020), GLOBOCAN database (2020), The AACR Project GENIE Consortium version 8.1 (2020), TCGA Research Network: https://www.cancer.gov/tcga, Tyner JW et al. (2018) PMID: 30333627, Brenner CW et al (2013) PMID: 24120142, Chen J et al. (2020) PMID: 32015526, and Ostrom QT, et al. (2020) PMID: 33123732

Our therapeutic strategies for shutting down the RAS/MAPK pathway

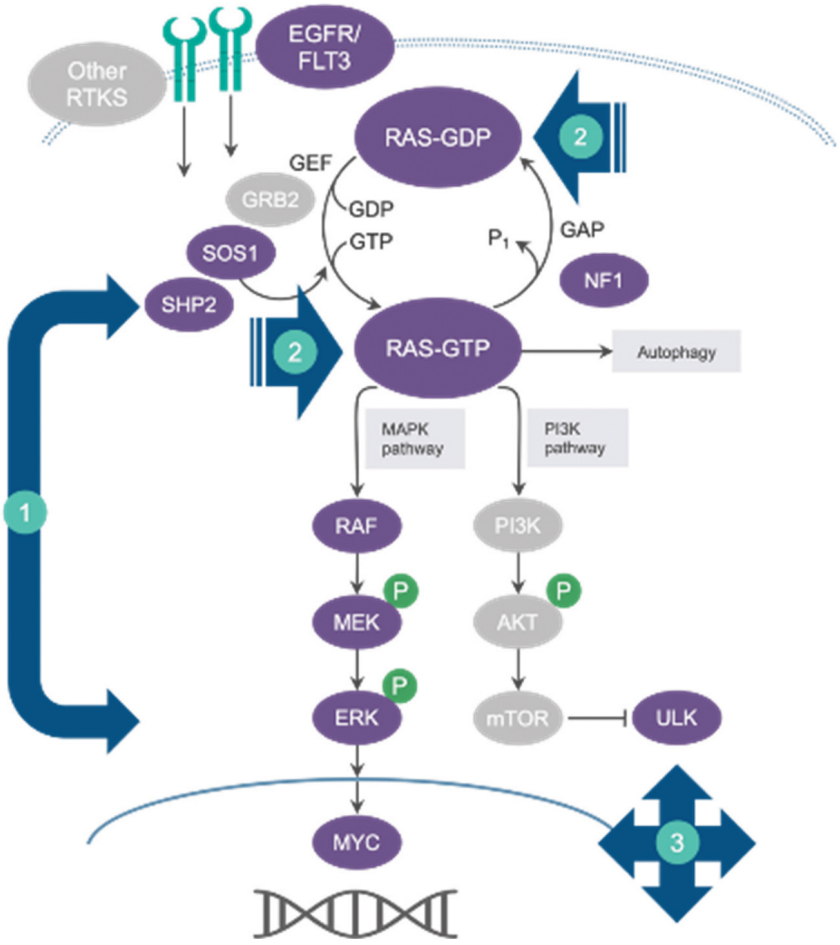
We believe that to effectively shut down a pathway that signals as promiscuously as RAS/MAPK, a holistic approach must be taken to target not just single nodes, but multiple nodes and cooperative mechanisms in parallel. We believe our internally and externally sourced RAS/MAPK pathway-focused pipeline, comprising 11 targeted therapy programs, is the deepest in the industry. The target breadth and molecular diversity represented in our pipeline enable us to pursue a systematic, data-driven clinical development effort to identify single agent and combination approaches that aim to prolong survival in numerous patient populations with high unmet medical needs. We are pursuing three therapeutic strategies that may be used in combination with the goal of comprehensively, and perhaps synergistically, shutting down the RAS/MAPK pathway:

1. ***Target upstream and downstream MAPK pathway nodes with single agents and combinations intended to clamp these oncogenic drivers.*** Our first therapeutic strategy to erase cancer is a novel MAPKlamp that targets upstream and downstream nodes, initially SHP2 and ERK, respectively, to shut down, or clamp, the signaling of various oncogenic drivers such as RTKs, NF1, RAS, RAF, and MEK alterations trapped in between any nodes involving this pathway. With our MAPKlamp approach, we aim to induce tumor regression in RAS/MAPK pathway-driven cancers, while also blocking their main escape routes that lead to tumor resistance. We are also discovering and developing single agent and combination approaches to target other upstream nodes that impact the RAS/MAPK pathway such as EGFR, an RTK that represents a key escape route for RAS/MAPK pathway signaling, and SOS1, a GEF that enables RAS to cycle from the inactive GDP state to the active GTP state.

2. ***Target RAS, the midstream MAPK pathway node, directly with single agents and combinations.*** Our second therapeutic strategy to erase cancer is to target RAS directly by discovering and developing molecules that have the potential to inhibit RAS-GDP, as well as the more prevalent RAS-GTP. Utilizing our in-house discovery efforts employing structure-based drug/degrader design (SBDD), we are developing CNS-penetrant inhibitors of KRAS G12C, which is the only RAS isoform and mutation that is more commonly present in the inactive RAS-GDP state. We are also employing SBDD to develop proprietary compounds against KRAS G12D, which is more commonly found in the active RAS-GTP state and is the most prevalent KRAS mutation. Our approach to targeting other RAS isoforms and mutations that are found more commonly in the RAS-GTP state is based on the foundational discoveries of one of our co-founders, Dr. Kevan Shokat, a world-renowned pioneer of novel therapeutic approaches to targeting key signaling pathways such as RAS/MAPK in cancer.

3. ***Target escape routes enabled by other proteins or pathways to further disrupt RAS/MAPK pathway signaling.*** Our third therapeutic strategy to erase cancer is to target other pathways and mechanisms that cooperate with RAS/MAPK pathway signaling. For example, RAS-driven cancers can become dependent on autophagy, which becomes constitutively active and represents a potential escape route for metabolically active tumors such as pancreatic ductal adenocarcinoma. By targeting ULK, a key regulator of autophagy, in combination with our RAS targeting agents, we aim to shut down this potential escape route for RAS-driven cancers. We also are actively pursuing various ways to further disrupt RAS/MAPK signaling by degrading key proteins. Finally, MYC is a transcription factor and oncogene that is overexpressed in the majority of human cancers, contributing to at least 40% of tumors and is a key enabler of RAS/MAPK pathway signaling at the transcriptional level. We are discovering novel approaches to targeting MYC.

Our strategic focus on the RAS/MAPK pathway allows us to comprehensively target every critical node in the pathway that could drive signaling. As shown in the figure below, our wholly-owned or controlled pipeline targets, either directly or indirectly, each of the signaling nodes colored in purple.



Our innovation model

Due to the magnitude of the challenge of erasing cancer, we are combining our robust internal discovery and development capabilities with a global in-licensing and acquisition strategy to assemble the industry's deepest, modality-agnostic RAS/MAPK pathway-focused pipeline. We believe these complementary approaches to innovation provide us with important optionality, both therapeutically and strategically, as we endeavor to bring forth the next generation of potentially differentiated targeted therapies for RAS/MAPK pathway-driven cancers.

Internal discovery and development

We have built a productive and efficient internal discovery engine at the heart of which lies SBDD, a key tool for the discovery of novel small molecule therapeutics and protein degraders by elucidating the three-dimensional structure of the potential drug molecule or degrader bound to the target protein of interest, allowing scientists to better understand and iterate on the structure-activity relationship of their hit and lead compounds or degraders. Three of our senior scientists were early pioneers in the use of SBDD while at Agouron Pharmaceuticals (now Pfizer), the first biotechnology company to use protein structure to inform medicinal chemistry for drug discovery: Dr. Dave Matthews, the scientific founder of Agouron, is our Senior Crystallography Advisor; Dr. Michael Varney, one of the original employees at Agouron who built the team that developed SBDD, is our Chair of R&D, SAB member, and a member of our board of directors; and Dr. Ping Chen, our Senior Director of Crystallography, was a member of Dr. Matthews' structural biology team at Agouron, and joined us from Pfizer to lead our internal structural biology efforts which generates more than 100 protein structures annually to guide our discovery research.

We use computational biology and computational chemistry to accelerate our discovery activities. We have standardized how we characterize our compounds across in vitro/vivo activity, drug distribution, metabolism, and pharmacokinetics (PK), structural, and secondary pharmacology assays, and centralized the storage of these data for automated analyses. These data are continuously reviewed by our scientific teams, and promising trends, including unpredicted ones that arise serendipitously, are prioritized for future exploration.

We supplement our medicinal chemistry efforts with fragment screens, including DNA encoded library (DEL) screens, to identify novel chemical matter with promising activity against targets of interest. These “hits” give us starting points for our early-stage drug discovery programs, and also provide opportunities to diversify molecular designs for later-stage discovery programs. DEL screens interrogate the binding of billions of compounds against our targets and increase the likelihood that we will discover a fragment that we can eventually transform into a potent therapy.

Based on our previous collective experiences at Ignyta, Roche/Genentech, Pfizer, and elsewhere, our team has extensive precision oncology expertise with dynamic clinical trial designs such as adaptive trials, biomarker-based basket and umbrella studies, and master protocols. We will continue to leverage this experience, in collaboration with industry and academic partners, in order to quickly demonstrate clinical proof-of-concept in a variety of tumor types for both single agent and combination approaches.

External sources of innovation

We believe innovation in cancer therapy is a collective, global endeavor unlikely to emerge from a single company or a single platform. There are exciting product candidates, technologies, and approaches in development worldwide, and our innovation model gives us the flexibility to supplement our internal efforts with externally sourced assets through collaboration, in-license, or acquisition. We also established Erasca Ventures, our wholly-owned subsidiary, in March 2021 to make equity investments in early-stage biotechnology companies that are aligned with our mission and strategy. In March 2022, Erasca Ventures made an equity investment in Affini-T Therapeutics, Inc. (Affini-T) to develop Affini-T’s potential best-in-class T-cell receptor (TCR) cell therapies targeting multiple oncogenic driver mutations, including KRAS G12V and KRAS G12D. To date, we have in-licensed or acquired novel therapies from multiple geographic regions, including our clinical-stage, oral ERK1/2 inhibitor, ERAS-007, which we acquired from Asana.

We leverage our extensive network of preferred relationships with our Scientific and Research & Development Advisory Boards, as well as leading institutional investors, investment banks, academic institutions, and biopharmaceutical companies that keep us apprised of assets of strategic interest. We pursue the best science in the world, regardless of its origin, and will continue to evaluate additional opportunities to strengthen and diversify our pipeline through academic and biopharmaceutical collaborations, in-licenses, acquisitions, and strategic investments that meet our high scientific bar and can help us advance our mission to erase cancer.

Modality-agnostic pipeline

Cancer is a complex, heterogeneous disease that is unlikely to succumb to a one-size-fits-all approach. We believe shutting down the RAS/MAPK pathway in cancer requires a systematic, data-driven approach to development, part of which involves choosing the most appropriate technology for the target of interest, or what we call a modality-agnostic approach. We therefore seek to understand the biology of the target of interest first, and then choose the therapeutic modality best suited to optimally inhibit or degrade that target. We are currently utilizing several modalities to target the RAS/MAPK pathway, including small molecule therapeutics, large molecule therapeutics, and protein degraders.

For example, we are developing protein degraders in addition to our internal small molecule discovery capabilities, including proteolysis targeting chimeras (PROTACs), as a complementary strategy to modulate RAS/MAPK pathway proteins of interest. PROTAC-mediated degradation is a viable option for attenuating oncogenic RAS/MAPK pathway levels and downstream signaling in cancer cells, by utilizing the body’s own natural disposal system to remove oncogenic proteins selectively and efficiently.

Our pipeline

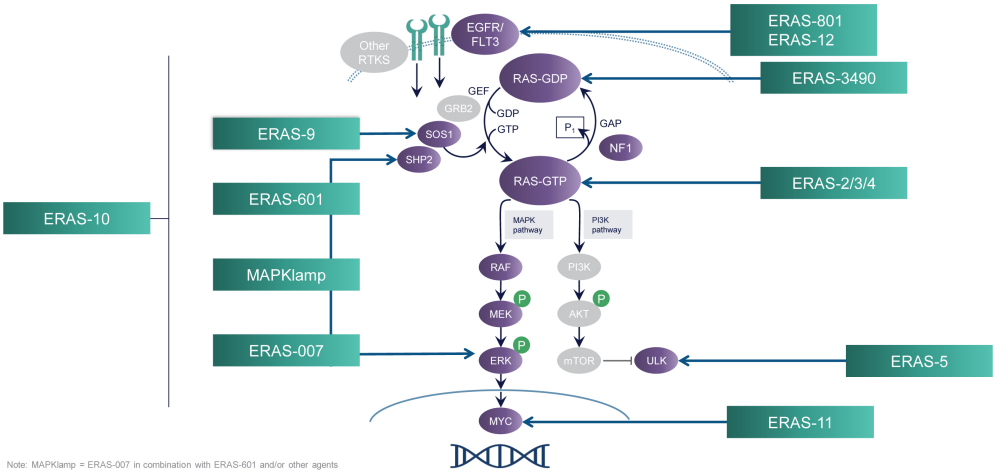
We have assembled what we believe is the deepest, wholly-owned or controlled RAS/MAPK pathway-focused pipeline in the industry, comprising 11 modality-agnostic programs aligned with our three therapeutic strategies of: (1) targeting key upstream and downstream signaling nodes in the RAS/MAPK pathway; (2) targeting RAS directly; and (3) targeting escape routes that emerge in response to treatment. The table below summarizes our current pipeline. We have exclusive worldwide development and commercial rights for all of our programs (excluding programs in our pipeline that arise from an investment made by Erasca Ventures in a third party).

Program/ Company	Target	Modality	Indication	Discovery	IND-enabling	Phase 1	Phase 2	Phase 3	Erase Cancer Strategy	Worldwide Rights
			Tissue agnostic RAS/MAPK altered solid tumors	HERKULES-1					1	ERASCA
ERAS-007*	ERK1/2	small molecule	EGFRm & RAS/MAPK altered NSCLC	HERKULES-2					1	ERASCA
			BRAFm & RAS/MAPK altered GI Tumors	HERKULES-3					1	ERASCA
			FLT3m & RAS/MAPK altered liquid tumors	HERKULES-4					1	ERASCA
ERAS-601*	SHP2	small molecule	RAS/MAPK altered tumors	FLAGSHP-1					1	ERASCA
ERAS-801	EGFR	small molecule	EGFR altered GBM	THUNDERBBOLT-1					1	ERASCA
ERAS-3490	KRAS G12C	small molecule	KRASm G12C solid tumors						2	ERASCA
ERAS-2/3	RAS-GTP	small molecule	RASm solid tumors						2	ERASCA
ERAS-4	KRAS G12D	small molecule	KRASm G12D solid tumors						2	ERASCA
ERAS-5	ULK	small molecule	RASm solid tumors						3	ERASCA
ERAS-9	SOS1	small molecule	RAS/MAPK altered solid tumors						1	ERASCA
ERAS-10	RAS/MAPK	protein degrader	RAS/MAPK altered cancers						1 2 3	ERASCA
ERAS-11	MYC	small molecule	MYC & RAS/MAPK altered solid tumors						3	ERASCA
ERAS-12	EGFR D2/D3	large molecule	EGFR & RAS/MAPK altered solid tumors						1	ERASCA
Affini-T	KRAS G12V/D	TCR T cell therapy	KRASm solid tumors						2	affini

small molecule · protein degrader · large molecule · TCR T cell therapy · ERASCA investment

* Together, ERAS-007 and ERAS-601 comprise our first innovative MAPKlamp

Importantly, we believe the target breadth and molecular diversity represented in our pipeline enable us to pursue a systematic, data-driven clinical development effort to identify single agent and combination approaches designed to comprehensively shut down the RAS/MAPK pathway in a range of underserved cancer indications. The figure below illustrates the overlay between our current pipeline and several key nodes in the RAS/MAPK pathway that we believe are attractive targets for therapeutic intervention. Our pipeline also provides potential solutions for patients with limited or no treatments available by directly targeting with single agents and/or clamping with combinations, the various nodes of the RAS/MAPK pathway.



MAPKlamp: our therapeutic strategy targeting proximal and terminal nodes of the RAS/MAPK pathway

Our first therapeutic strategy to erase cancer with various combinations is MAPKlamp, our novel approach targeting upstream and downstream nodes in the RAS/MAPK pathway designed to shut down, or clamp, the signaling of various oncogenic drivers, such as RTKs, NF1, RAS, RAF, and MEK alterations trapped in between any nodes involving this pathway. With our MAPKlamp approach, we aim to induce tumor regression in RAS/MAPK pathway-driven cancers, while also blocking the main escape routes that lead to tumor resistance.

Our lead product candidates are ERAS-007 (our oral ERK1/2 inhibitor) and ERAS-601 (our oral SHP2 inhibitor), which together comprise our first, innovative MAPKlamp approach. ERK and SHP2 are the convergent downstream and upstream nodes of the RAS/MAPK pathway, respectively. ERK proteins propagate signaling for multiple cellular functions involved in cell growth and differentiation, which are often overactivated in RAS/MAPK pathway-driven cancers. We believe that targeting ERK, the terminal node of the RAS/MAPK pathway, is preferable to targeting MEK because it is less prone to MAPK pathway reactivation, which leads to greater suppression of signaling. The second prong of our first MAPKlamp, ERAS-601, is a potent and selective oral inhibitor of SHP2, a critical “on/off switch” that activates RAS-GTP signaling. Our SHP2 inhibitor is designed to block oncogenic signal transduction and delay the onset of therapeutic resistance. Targeting either or both of these key nodes thereby has the potential to serve as a backbone of combination therapy against RAS/MAPK pathway altered cancers.

As our portfolio advances, we anticipate additional MAPKlamp combinations to emerge. Given the breadth of our pipeline, we believe we are the only company that has the therapeutic and strategic flexibility to comprehensively target every critical node in the RAS/MAPK pathway that could drive cancer signaling.

ERAS-007: our ERK inhibitor

ERAS-007 is designed to be a potent and selective oral inhibitor of ERK1/2. We in-licensed ERAS-007 from Asana based in part on preclinical studies that demonstrated the highest potency and longest target residence time of ERK inhibitors of which we are aware. In a Phase 1 clinical trial completed by Asana, ERAS-007 demonstrated single-agent activity including objective responses in tumors harboring RAS/MAPK pathway alterations and was well tolerated. We are pursuing a broad clinical development plan across multiple tumor types for ERAS-007, which we refer to as our HERKULES series of clinical trials, that will include both monotherapy and combinations with approved and investigational agents, such as RTK, SHP2, RAS, and/or RAF inhibitors. The first four HERKULES Phase 1b/2 clinical trials are exploring both tissue agnostic and tissue specific indications in patients with solid tumors and hematologic malignancies. We dosed the first patient in HERKULES-1 in May 2021 and the first patients in HERKULES-2 and HERKULES-3 in September 2021. We believe that as many as 4.5 million patients worldwide per year could benefit from ERAS-007 combinations that include MAPKlamp, including 4.0 million patients with blue ocean indications where there are currently limited or no approved therapies.

Preclinical profile of ERAS-007

Asana completed a series of preclinical studies to characterize the differentiated attributes, namely high potency and long target residence time, of ERAS-007 in vivo and in vitro. In multiple assays, ERAS-007 achieved potent, reversible, and ATP-competitive inhibition of ERK1 and ERK2 with a biochemical IC50 (a measure of 50% inhibition) against both ERK1 and ERK2 of 2 nM and cell-based mechanistic IC50 against pRSK of 7 nM. In addition, ERAS-007 exhibited long biochemical residence time while bound to ERK, which has been measured as 550 minutes against ERK2. This longer target residence time compared to other clinical-stage ERK inhibitors may allow for longer intervals between doses in patients.

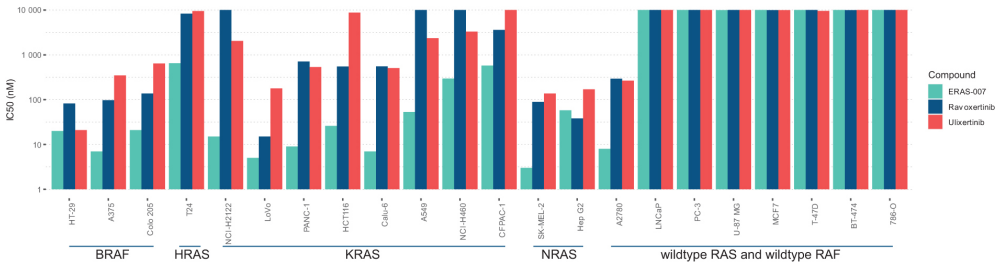
Assay Type	Assay	ERAS-007 IC50 (nM)
Biochemical	ERK1	2
	ERK2	2
Cell-based mechanistic (HT-29)	pRSK	7

ERAS-007 IC50s against ERK1 and ERK2 were characterized in a biochemical kinase activity. Cell-based IC50 was characterized by the ability of ERAS-007 to inhibit ERK from phosphorylating one of its downstream targets, RSK1. pRSK represents RSK1 phosphorylation.

Compound	k_{off} (s^{-1})	Residence Time (min)
ERAS-007	**0.30 x 10^{-4}**	**550**
Ulixertinib	10.1 x 10^{-4}	16
Ravoxertinib	13.9 x 10^{-4}	12

The biochemical binding properties of three clinical-stage ERK inhibitors shown as both the rate at which each inhibitor dissociates from ERK2 (k_{off}) and the period of time that each ERK inhibitor binds ERK2 (residence time).

This biochemical potency has translated into strong anti-proliferative activity in cell lines with mutations in the RAS/MAPK pathway compared to other clinical-stage ERK inhibitor compounds. In 14 out of 14 cell lines that harbored activating RAS/MAPK pathway alterations, ERAS-007 exhibited potent activity with a less than 1 µM IC50. In two KRAS G12C cell lines, ERAS-007 showed greater potency compared to ulixertinib, an ERK inhibitor, comparable potency to binimetinib, a MEK inhibitor, and sotorasib, a KRAS G12C inhibitor. Cellular signaling studies demonstrated that ERAS-007 inhibited phosphorylation of downstream targets of ERK such as ribosomal S6 kinases (RSK), Fos-related antigen (FRA), and ETS domain-containing protein (ELK) in the BRAF V600E CRC HT-29 cell line. Demonstrating its selectivity, in seven out of eight cell lines that did not harbor any activating RAS/MAPK pathway alterations, ERAS-007 showed weak inhibition with a greater than 10 µM IC50. Together, these results suggest that ERAS-007 is a potent and selective ERK inhibitor with the ability to inhibit cell growth in multiple models of RAS/MAPK pathway-driven cancers relative to other agents used in these settings.

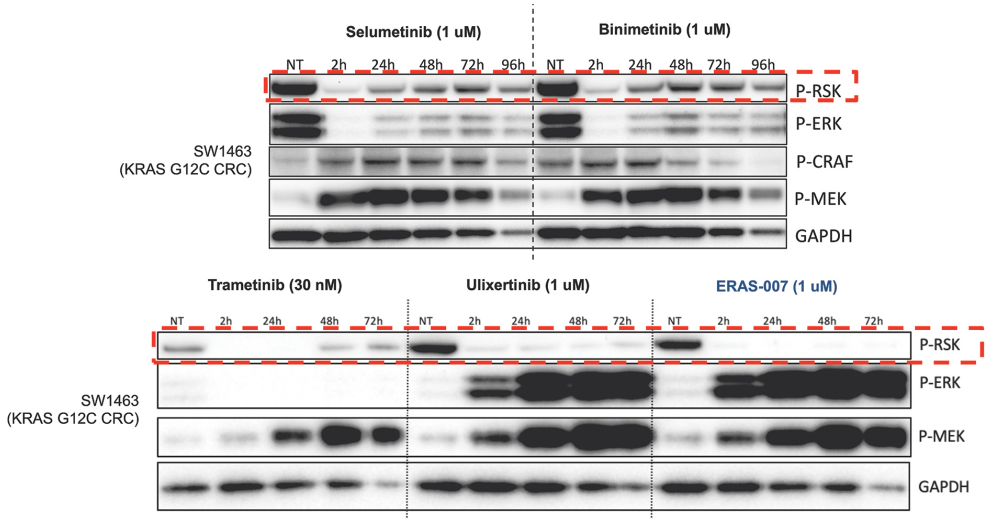


ERAS-007, ulixertinib and ravoxertinib were profiled in 3 BRAF mutant, 1 HRAS mutant, 8 KRAS mutant, 2 NRAS mutant, and 8 wildtype RAS and wildtype RAF cell lines. Nanomolar IC50 values are represented on the y-axis. Lower IC50s denote stronger activity.

Compound Name	Inhibitor Class	MIA PaCA-2 IC50 (nM)	NCI-H358 IC50 (nM)
ERAS-007	ERKi	**7.1**	**8.2**
Ulixertinib	ERKi	206.8	131.3
Binimetinib	MEKi	16.6	5.4
Trametinib	MEKi	3.4	0.8
Sotorasib	KRAS G12Ci	13.3	2.6

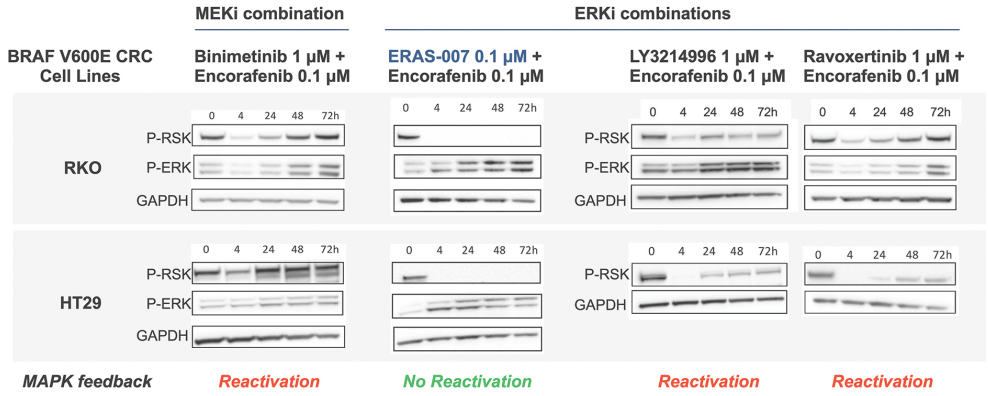
ERAS-007 inhibits cell viability of two KRAS G12C mutant cell lines, pancreatic carcinoma MIA PaCa-2 and NSCLC NCI-H358, with higher potency than a clinical-stage ERK inhibitor, ulixertinib, and comparable potency to an approved MEK inhibitor, binimetinib, and an approved KRAS G12C inhibitor, sotorasib.

Inhibition of signaling by kinases is typically achieved by either: (1) ATP-competitive inhibition whereby an inhibitor blocks ATP binding or (2) allosteric inhibition whereby an inhibitor does not block ATP binding but rather binds to a different region to prevent the kinase from signaling downstream. Currently approved MEK inhibitors, trametinib, binimetinib, selumetinib, and cobimetinib, are allosteric MEK inhibitors. A potential limitation of these allosteric MEK inhibitors is that they preferentially bind MEK in the inactive state and have weaker inhibitory activity against activated MEK proteins. Another limitation is that some MEK inhibitors preferentially disrupt activation via one RAF family member (e.g., BRAF) but not another (e.g., CRAF). Due to negative feedback regulation in the RAS/MAPK pathway, inhibition of downstream signaling nodes can result in RAS/MAPK pathway feedback reactivation that is mediated through multiple members of the RAF family. This increased upstream signaling pressure can serve as a resistance mechanism to MEK inhibitors and has been observed in the clinic. As an ATP-competitive ERK inhibitor, ERAS-007 has been shown to more robustly block RAS/MAPK pathway reactivation than allosteric MEK inhibitors. As shown in the figure below, ERAS-007 continuously inhibited downstream ERK activity in a KRAS G12C mutant CRC cell line, whereas the RAS/MAPK pathway was reactivated beginning as early as 24 hours after treatment with each of the three MEK inhibitors, which is illustrated with the emergence of the dark P-RSK bands (darker intensity equates to higher signaling or reactivation) in the following Western blots.



Western blot characterization of three MEK inhibitors (selumetinib, binimetinib, and trametinib) and two ERK inhibitors (ulixertinib and ERAS-007) in the KRAS G12C mutant CRC cell line SW1463. The phosphorylation states of RSK (P-RSK), ERK (P-ERK), CRAF (P-CRAF) and MEK (P-MEK) are shown. Band intensity indicates level of phosphorylation. Total GAPDH (GAPDH), a housekeeping gene, is used as a protein loading control. Times, in hours, represent the duration of compound incubation. NT means "no treatment," and this sample serves as a negative control. The level of P-RSK, highlighted in dotted red rectangles, indicates ERK signaling activity. The absence of a P-RSK band indicates inhibition of ERK signaling activity and thereby inhibition of RAS/MAPK pathway signaling.

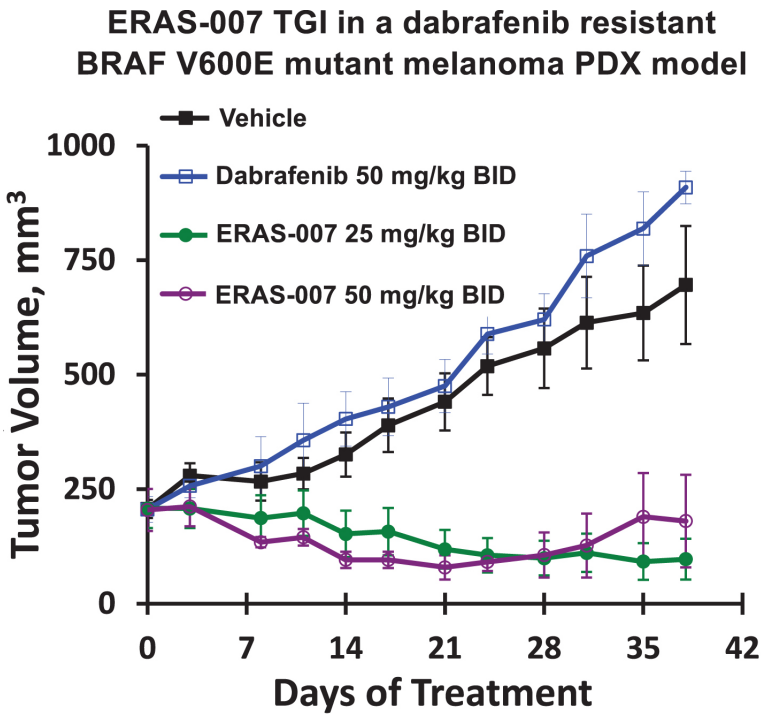
In BRAF V600E colorectal cell lines, ERAS-007 also blocked the RAS/MAPK pathway feedback reactivation observed with MEK or other ERK plus BRAF inhibitor combinations at one-tenth the concentration used for the MEK and other ERK inhibitors. These results provide further support that inhibition of ERK by ERAS-007 may lead to more complete and durable blockade of the RAS/MAPK pathway relative to other inhibitors of ERK or MEK, either alone or in combination.



Treatment of two BRAF V600E mutant CRC cell lines, RKO and HT-29, with encorafenib in combination with the MEK inhibitor binimetinib, the ERK inhibitor ERAS-007, the ERK inhibitor LY3214996, and the ERK inhibitor ravoxertinib. The Western blot gels depict phosphorylation of RSK (P-RSK) and ERK (P-ERK). Higher levels of phosphorylation are depicted by higher (i.e., darker) band intensity. Total GAPDH protein (GAPDH) serves as a loading control. ERK signaling activity is represented by the phosphorylation state of RSK (P-RSK), which is a downstream target of ERK. The column values indicate the duration of compound incubation of up to 72 hours.

To explore ERAS-007 activity in vivo, we measured tumor growth inhibition (TGI) in a melanoma patient-derived xenograft (PDX) model resistant to BRAF and MEK inhibitors. Whereas treatment with dabrafenib, a BRAF inhibitor, and vehicle showed similar tumor growth trajectories, ERAS-007 significantly inhibited tumor growth at the end of the 38-day treatment period at both 25 mg/kg twice a day (BID) (p-value < 0.001) and 50 mg/kg BID (p-value < 0.01). These data suggest ERAS-007 may be more potent than BRAF or MEK inhibitors in achieving inhibition of the RAS/MAPK pathway and may be able to overcome treatment resistance.

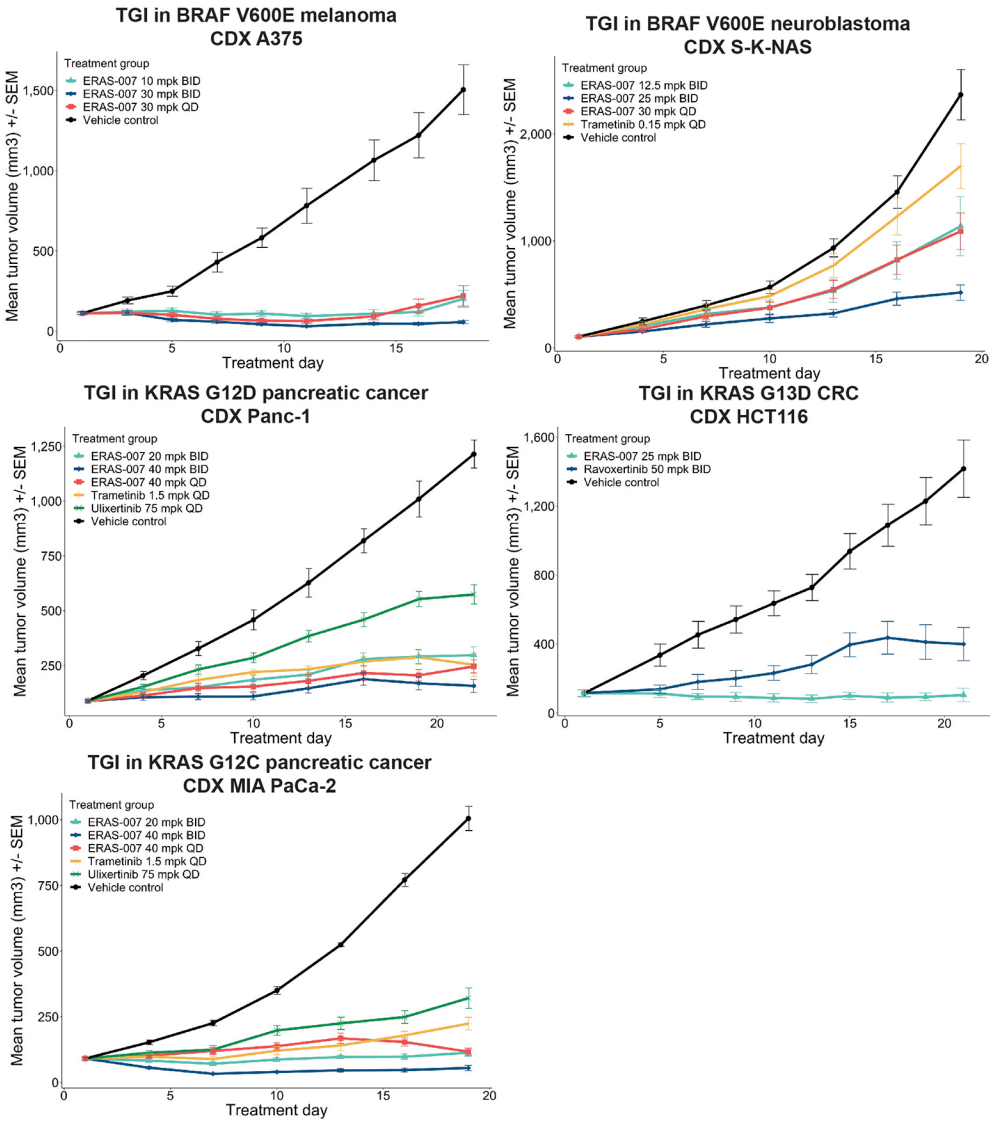
A p-value is the probability that the reported result was achieved purely by chance, such that a p-value of less than or equal to 0.05 means that there is a less than or equal to 5% probability that the difference between the control group and the treatment group is purely due to chance. A p-value of 0.05 or less typically represents a statistically significant result. The FDA's evidentiary standard of efficacy when evaluating the results of a clinical trial generally relies on a p-value of less than or equal to 0.05.



ERAS-007 shows significant TGI relative to vehicle control at both 25 mg/kg BID (p-value < 0.001) and 50 mg/kg BID (p-value < 0.01) in a dabrafenib resistant melanoma PDX model.

Preclinical anti-tumor activity of ERAS-007

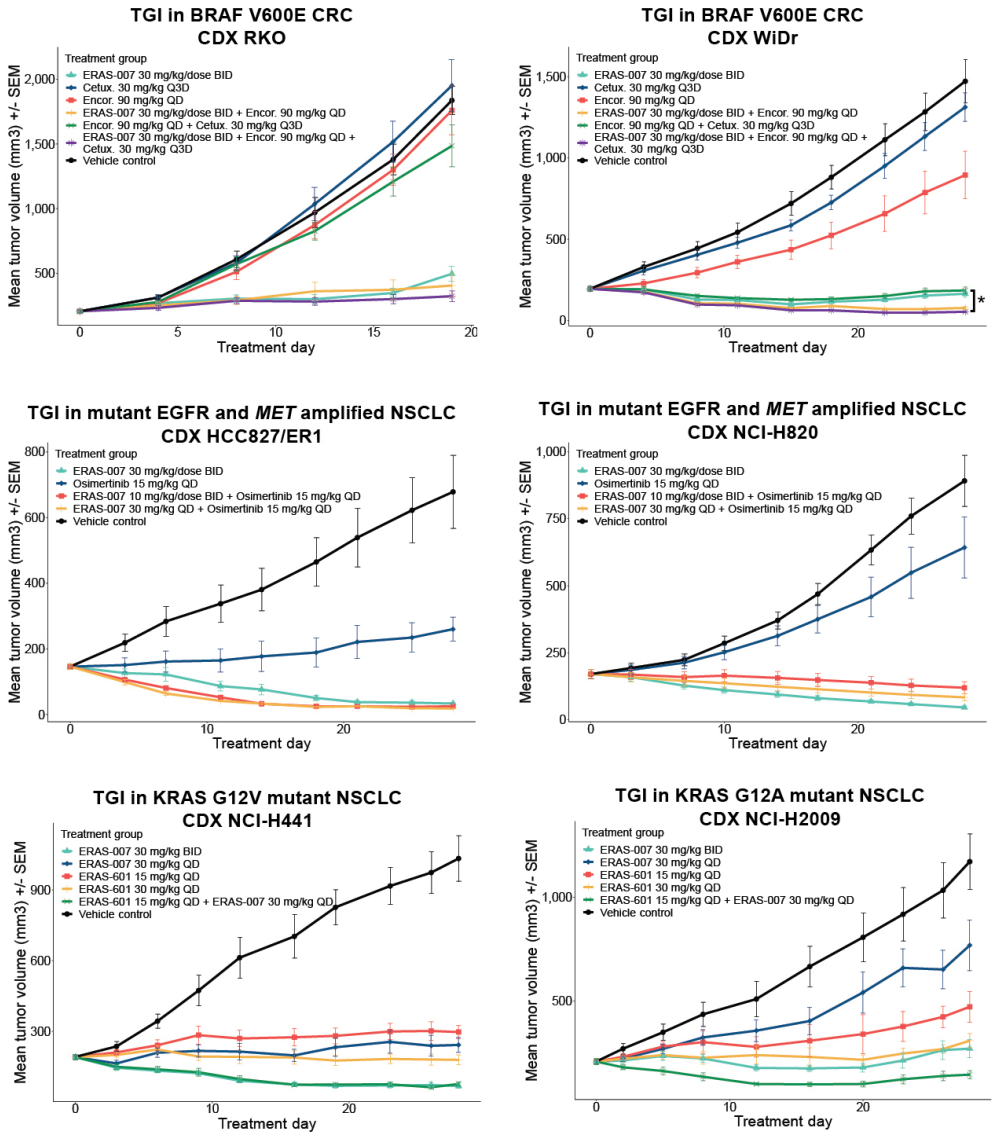
We further showed the breadth of ERAS-007 in vivo activity in CRC, NSCLC, pancreatic cancer, melanoma, and neuroblastoma models harboring alterations in the BRAF, NRAS, or KRAS nodes of the RAS/MAPK pathway. In the BRAF V600E mutant melanoma cell line-derived xenograft (CDX) A375 model, ERAS-007 showed dose-dependent tumor inhibition with a maximal 104% TGI at 30 mg/kg BID (p-value <0.001 across all ERAS-007 doses relative to vehicle control). In the NRAS Q61K mutant neuroblastoma CDX SK-N-AS model, ERAS-007 showed dose-dependent tumor inhibition with a maximal 82% TGI at 25 mg/kg BID (p-value < 0.001 across all ERAS-007 doses relative to vehicle control). In the KRAS G12D pancreatic CDX Panc-1 model, ERAS-007 showed dose-dependent TGI with a maximal 94% TGI at 40 mg/kg BID (p-value < 0.001 across all ERAS-007 doses relative to vehicle control). In the KRAS G13D CRC CDX HCT116 model, ERAS-007 showed 101% TGI at 25 mg/kg BID (p-value < 0.001 relative to vehicle control). ERAS-007 showed superior TGI to ulixertinib at 75 mg/kg QD in Panc-1 and MIA PaCa-2 at doses ranging from 20 mg/kg BID to 40 mg/kg BID. TGI values >100% indicated tumor regression.



ERAS-007 showed significant TGI in pancreatic cancer, CRC, melanoma, and neuroblastoma CDX models at doses ranging from as low as 10 mg/kg BID (p-value < 0.001). At doses ranging from 20 mg/kg BID to 40 mg/kg BID, ERAS-007 showed superior TGI to a clinical-stage ERK inhibitor, ulixertinib, at 75 mg/kg QD, in pancreatic cancer Panc-1 and MIA PaCa-2 CDX models. ERAS-007 at 25 mg/kg BID also showed superior TGI to ravoxertinib at 50 mg/kg BID in the CRC HCT-116 CDX model. Relative to trametinib at 1.5 mg/kg QD, ERAS-007 showed superior TGI in the MIA PaCA-2 CDX model at doses ranging from 20 mg/kg BID to 40 mg/kg BID and in the pancreatic cancer CDX Panc-1 at 40 mg/kg BID. In the neuroblastoma S-K-NAS model, ERAS-007 showed superior TGI at doses as low as 12.5 mg/kg BID to trametinib at 0.15 mg/kg QD. Error bars represent standard error of the mean (SEM).

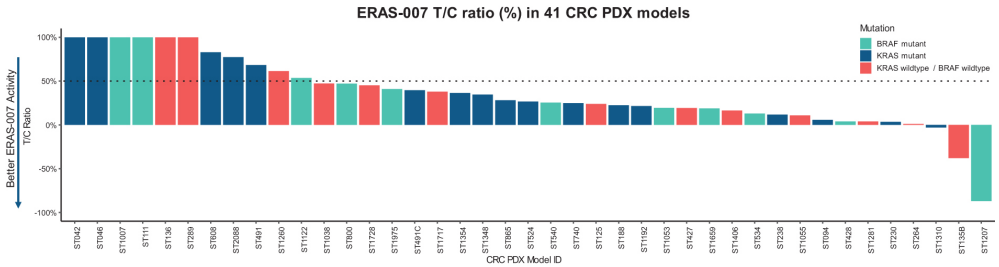
ERAS-007 showed statistically significant TGI in BRAF V600E CRC, mutant EGFR NSCLC, and mutant KRAS NSCLC CDX models as a monotherapy and in combination with standard of care targeted therapies and with ERAS-601 (our first MAPKlamp). In the BRAF V600E CRC CDX model RKO, ERAS-007 exhibited 82% TGI as a monotherapy (p-value < 0.001), 88% TGI in combination with encorafenib (p-value <0.001) and 93% TGI in combination with encorafenib and cetuximab (p-value < 0.001). In the BRAF V600E CRC CDX model WiDr, ERAS-007 exhibited 102% TGI as a monotherapy (p-value < 0.001), 109% TGI in combination with encorafenib (p-value < 0.001), and 111% TGI in combination with encorafenib and cetuximab (p-value < 0.001). Indicated with an asterisk in the graphic, both ERAS-007 combinations achieved statistically significant TGI relative to either the encorafenib and cetuximab combination or ERAS-007 monotherapy (p-values < 0.01). In the EGFR exon 19 deletion and MET amplified CDX HCC827/ER1, ERAS-007 achieved 121% TGI as a monotherapy (p-value < 0.001), 123% in combination with osimertinib at 10 mg/kg BID (p-value <0.001), and 124% TGI in combination with osimertinib at 30 mg/kg QD (p-value < 0.001). In the EGFR exon 19 deletion, EGFR T790M, and MET amplified CDX NCI-H820, ERAS-007 achieved 117% TGI as monotherapy (p-value < 0.001), 107% TGI in combination with osimertinib at 10 mg/kg BID (p-value < 0.001), and 112% TGI in combination with osimertinib at 30 mg/kg QD (p-value < 0.001).

In the KRAS G12V NSCLC CDX model NCI-H441, the MAPKlamp combination of ERAS-007 at 30 mg/kg QD and ERAS-601 at 15 mg/kg QD achieved a statistically significant TGI of 113% (p-value < 0.001), demonstrating statistically significant benefit relative to the respective monotherapy doses of both ERAS-007 at 30 mg/kg QD and ERAS-601 at 15 mg/kg QD (p-value < 0.01). ERAS-007 as a monotherapy at 30 mg/kg BID and 30 mg/kg QD doses achieved statistically significant TGI of 115% (p-value < 0.001) and 94% (p-value < 0.001), respectively. ERAS-601 as a monotherapy at 30 mg/kg QD and 15 mg/kg QD doses achieved statistically significant TGI of 101% (p-value < 0.001) and 87% (p-value < 0.001), respectively. In the KRAS G12A NSCLC CDX model NCI-H2009, the MAPKlamp combination of ERAS-007 at 30 mg/kg QD and ERAS-601 at 15 mg/kg QD achieved statistically significant TGI of 107% (p-value < 0.001). MAPKlamp achieved a statistically significant combination benefit relative to the respective monotherapy doses of both ERAS-007 at 30 mg/kg QD and ERAS-601 at 15 mg/kg QD (p-value < 0.01). The MAPKlamp combination also showed statistically significant superior TGI relative to ERAS-007 monotherapy at 30 mg/kg BID (p-value < 0.05) and ERAS-601 monotherapy at 30 mg/kg QD (p-value < 0.01). These doses represent the maximum monotherapy nonclinical efficacious doses for ERAS-007 and ERAS-601. ERAS-007 as a monotherapy at 30 mg/kg BID achieved statistically significant TGI of 93%). ERAS-601 as a monotherapy at 30 mg/kg QD and 15 mg/kg QD doses achieved statistically significant TGI of 90% (p-value < 0.001) and 73% (p-value < 0.001), respectively. TGI values >100% indicated tumor regression.



ERAS-007 was profiled in two BRAF V600E CRC CDX models, RKO, which was insensitive to encorafenib and cetuximab treatment, and WiDr, which was sensitive to encorafenib and cetuximab treatment. In both models, ERAS-007 combinations showed superior TGI to encorafenib (Encor.) and cetuximab (Cetux.) monotherapies and to the encorafenib and cetuximab combination (p-value < 0.01). The asterisk in the WiDr graphic indicates that the TGI of the ERAS-007 combinations relative to either the encorafenib and cetuximab combination or ERAS-007 monotherapy was statistically significant (p-value < 0.01). In two osimertinib-resistant mutant EGFR NSCLC CDX models, HCC827/ER1 and NCI-H820, ERAS- 007 showed superior TGI to osimertinib monotherapy both as a single agent and in combination with osimertinib (p-value < 0.001). In two mutant KRAS NSCLC CDX models, NCI-H441 and NCI-H2009, the MAPKlamp combination of ERAS-007 and ERAS-601 achieved statistically significant TGI relative to vehicle (p-values < 0.01) and showed statistically significant combination benefit relative to the respective monotherapy doses used in the MAPKlamp combination (p-values < 0.01). At their efficacious monotherapy doses, ERAS-007 and ERAS-601 also achieved significant TGI in both models as monotherapies (p-values < 0.01).

In a panel of 41 CRC PDX models, which include the most common genetic alterations in CRC, ERAS-007 inhibited tumor growth by greater than 50% relative to untreated tumors in 30 out of the 41 CRC PDX models (73%). ERAS-007's inhibitory activity was observed in 71% of KRAS mutant models (n=17 total), 73% of BRAF models (n=11 total), and 77% of KRAS wildtype and BRAF wildtype models (n=13 total). Together, these in vivo results suggest ERAS-007 exhibits strong single agent anti-tumor activity across a wide range of tumors with alterations in BRAF and KRAS relative to other agents in use today.



ERAS-007 inhibited tumor growth by greater than 50% in 73% of CRC PDX tumor models. The T/C (treated/control) ratio is calculated as the ratio of mean volume of ERAS-007 treated tumors to mean volume of untreated tumors in the control group. Lower values represent better TGI.

Phase 1 trial of single agent ERAS-007 in patients with advanced solid tumors

Asana completed a Phase 1 first-in-human clinical trial (ASN007-101) that evaluated the safety, tolerability, PK, pharmacodynamics (PD), and preliminary anti-tumor activity of ERAS-007 in patients with advanced cancers. Forty-nine patients were enrolled and administered ERAS-007 QD (17 patients) or QW (32 patients). Following dose escalation using both schedules, the recommended dose (RD) of 250 mg QW was selected. The maximum tolerated dose (MTD) on a daily schedule was 40 mg QD.

Phase 1 safety and tolerability

ERAS-007 showed a reversible and manageable adverse event profile, consistent with other RAS/MAPK-pathway inhibitors (e.g., MEK inhibitors). The ERAS-007 QW dosing schedule was better tolerated than QD dosing based on the treatment-related adverse events (TRAEs) reported. Transient nausea and vomiting observed with QW dosing were manageable. Skin toxicities have been noted as a class effect of inhibitors of RAF, MEK, or ERK. Less skin toxicity was observed with QW dosing of ERAS-007 compared to QD dosing. Ophthalmic toxicities have been observed during treatment with MEK targeted agents and occur with ERK inhibitors, and reversible retinopathy is a well-known MEK/ERK inhibitor class effect.

The ERAS-007 250 mg QW RD was well tolerated with minimal grade 3 and no grade 4 or 5 TRAEs, as shown in the table below. No grade 3 or higher eye toxicity was observed at this dose. We believe these safety results and QW dosing support combination strategies in our ERAS-007 clinical development plan.

System Organ Class / Preferred Term	Treatment-Related Adverse Events 250 mg Once Weekly Schedule N=13				
	All (%)	Gr 1 (%)	Gr 2 (%)	Gr 3 (%)	Gr ≥4 (%)
Gastro-Intestinal					
Diarrhea	10 (77)	6 (46)	4 (31)	-	-
Nausea	8 (62)	5 (38)	3 (23)	-	-
Vomiting	5 (38)	1 (8)	2 (15)	2 (15)	-
Skin					
Rash – acneiform	3 (23)	2 (15)	1 (8)	-	-
Rash – maculopapular	5 (38)	2 (15)	2 (15)	1 (8)	-
Rash	1 (8)	-	1 (8)	-	-
Eye					
Chorioretinopathy	-	-	-	-	-
Blurred vision	6 (46)	3 (23)	3 (23)	-	-

Phase 1 pharmacokinetics

As shown in the table below, the ERAS-007 Phase 1 data suggest that intermittent QW dosing is preferable to QD dosing. The duration of time in which mean concentration was above IC90 (%T>IC90), which correlates with tumor cell killing, was substantially longer for 250 mg QW (~29%) compared to 40 mg QD (~17%). The lower C_{min} for 250 mg QW, compared to 40 mg QD, allows more time for RAS/MAPK pathway recovery, which gives normal cells a treatment break during each dosing interval.

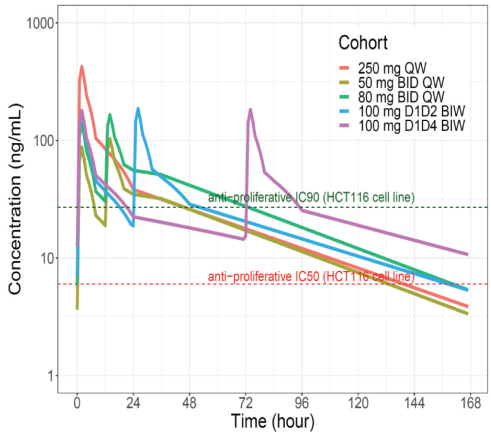
Mean Steady State PK Parameters (%CV)

Cohort	Cmax, ng/mL	Cavg, ng/mL	Cmin, ng/mL	T>IC90*
40 mg QD (n=8)	61 (54%)	19 (39%)	15 (100%)	~ 17%
250 mg QW (n=9)	495 (42%)	33 (73%)	3.5 (96%)	~ 29%

* IC90 based on HCT 116 anti-proliferation assay

Optimizing dosing and scheduling

The observed long biochemical residence time of ERAS-007 bound to ERK (greater than 9 hours) and the observed human half-life (approximately 30 hours) offer flexibility in optimizing the dosing schedule. While the QW schedule of ERAS-007 demonstrated clinical activity with an acceptable adverse event profile, our exploratory PK/PD analyses suggest that increasing duration of exposure above IC90 (which increases tumor cell killing) may drive anti-tumor activity, and that maintaining C_{min} near or below IC50 (which allows normal cells to recover) may improve safety and tolerability. Informed by the clinical data observed from the Phase 1 trial, we conducted PK simulations (projections based on the data) to explore alternative dosing regimens to provide additional flexibility for combinations with ERAS-601 (together, our first MAPKlamp) and other agents, as shown in the figure and table below.

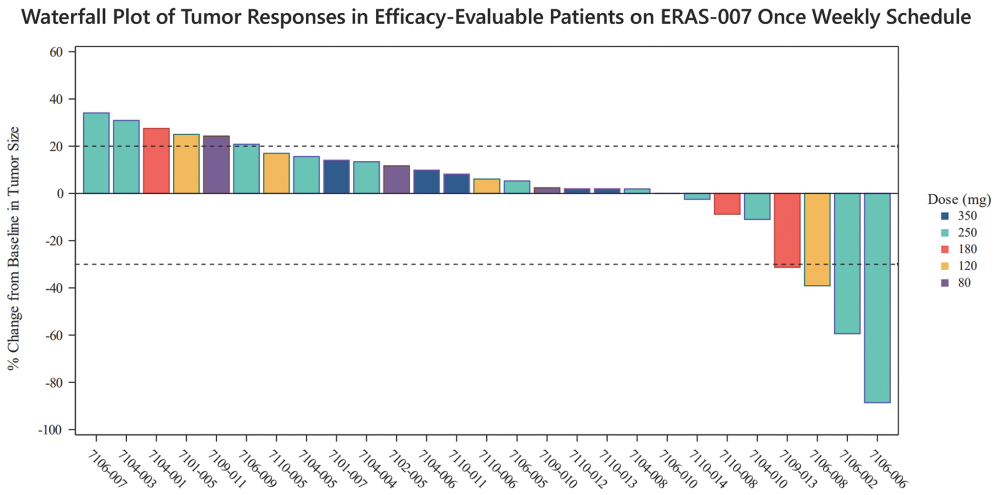


Dosing Regimen	Cmax, ng/mL	Cmin, ng/mL	T>IC90	T<IC50
250 mg QW	425	4	~2/7	~1/7
50 mg BID QW	103	3	~2/7	~1/7
80 mg BID QW	165	5	~3/7	~0.5/7
100 mg D1D2 BIW	186	5	~2/7	~0.5/7
100 mg D1D4 BIW	183	11	~2/7	0

The PK simulations suggest that the dosing regimen of twice daily on day 1 of each week (BID-QW) may potentially provide a meaningful extension of the duration of the PK exposure above the IC90 beyond what has been achieved with 250 mg QW to improve cancer cell killing, while still maintaining C_{min} near or below the IC50, to give normal cells a treatment break during each dosing interval. Therefore, in the Phase 1b/2 trial of ERAS-007 in patients with advanced or metastatic cancers (HERKULES-1, described below), we plan to evaluate this BID-QW dosing schedule in the dose escalation cohort, in addition to the 250 mg QW expansion cohort.

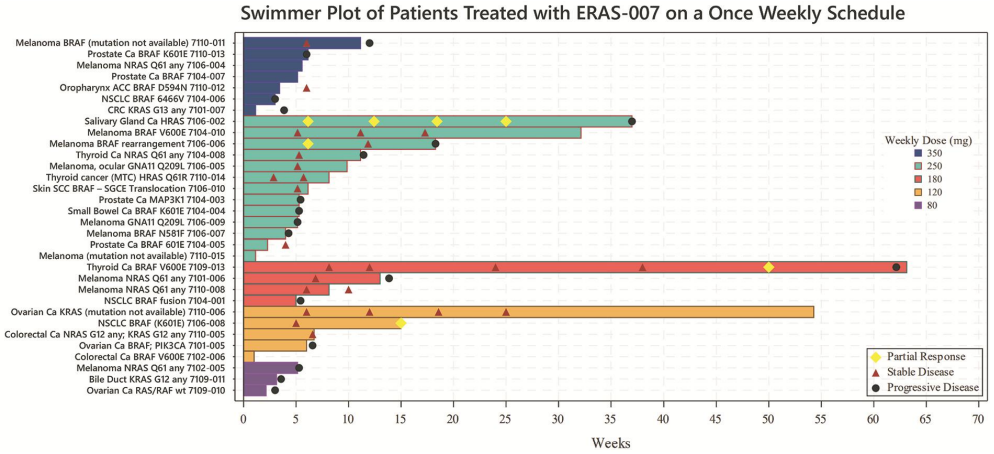
Phase 1 clinical activity

Objective tumor responses and durable disease control of ERAS-007 were observed in diverse tumor types at doses ranging from 120 to 250 mg QW in patients with BRAF-, HRAS-, and NRAS-driven cancers. As of the December 21, 2020 data cutoff, the waterfall plot below illustrates the objective responses seen in all patients who had received at least one dose of ERAS-007 and underwent at least one tumor assessment (the efficacy-evaluable patients). Four responses were observed in patients with BRAF V600E thyroid cancer (180 mg QW), BRAF K601E NSCLC (120 mg QW), HRAS salivary gland cancer (250 mg QW), and BRAF rearranged melanoma (250 mg QW).

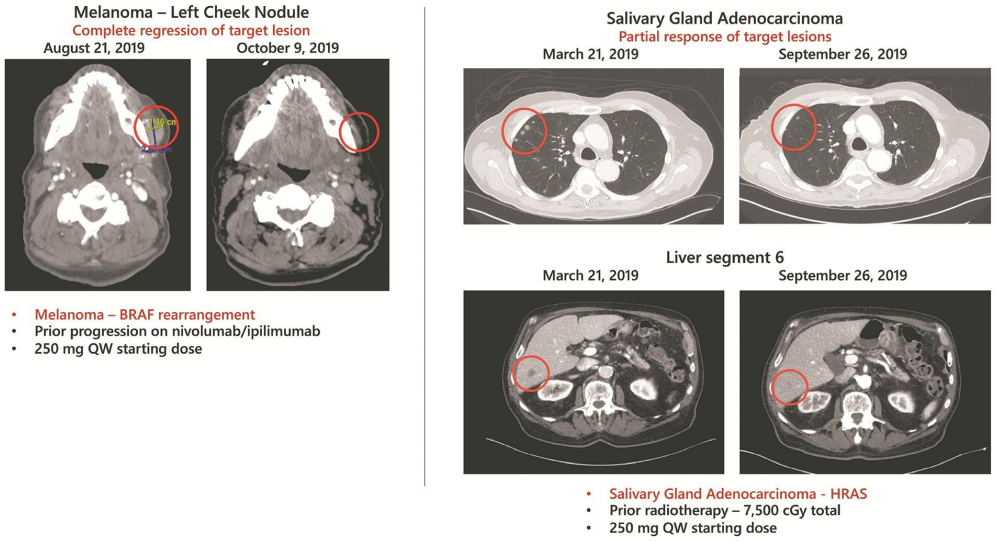


"% Change from Baseline in Tumor Size" is defined as the maximum reduction in the sum of tumor diameters of selected target lesions measured after a patient started on study treatment compared to the baseline measurements of the same target lesions before study treatment was started. "Efficacy-Evaluable" is defined as patients who have a baseline tumor scan and at least one post-baseline scan after starting study treatment, to allow assessment of tumor response. Prior treatments in patients with objective responses included: HRAS salivary gland—radiation; BRAF rearranged melanoma—nivolumab/ipilimumab, radiation; BRAF V600E thyroid—radiation; BRAF K601E NSCLC—carboplatin/pemetrexed, carboplatin/paclitaxel plus durvalumab. The dashed lines represent the RECIST-defined definitions of response (30% decrease) or progression (20% increase) in tumor size.

As of the December 21, 2020 data cutoff, the swimmer plot below demonstrated encouraging duration of treatment, with three patients who achieved disease control that exceeded one year. One patient with BRAF V600E melanoma (7104-010) received ERAS-007 for a total of 71 weeks before experiencing disease progression, first on the ASN007-101 clinical trial (shown in this swimmer plot) and subsequently on a single patient IND (not shown in this swimmer plot), since the patient was deriving clinical benefit at the time the ASN007-101 trial had completed.



Examples of single agent activity of ERAS-007 from these responses in patients with melanoma and salivary gland adenocarcinoma are shown in the scan images below. On the left, a patient with a BRAF rearranged melanoma, who had prior progression on nivolumab/ipilimumab, showed complete regression of the target lesion. On the right, a patient with HRAS salivary gland cancer showed partial response of target lesions.

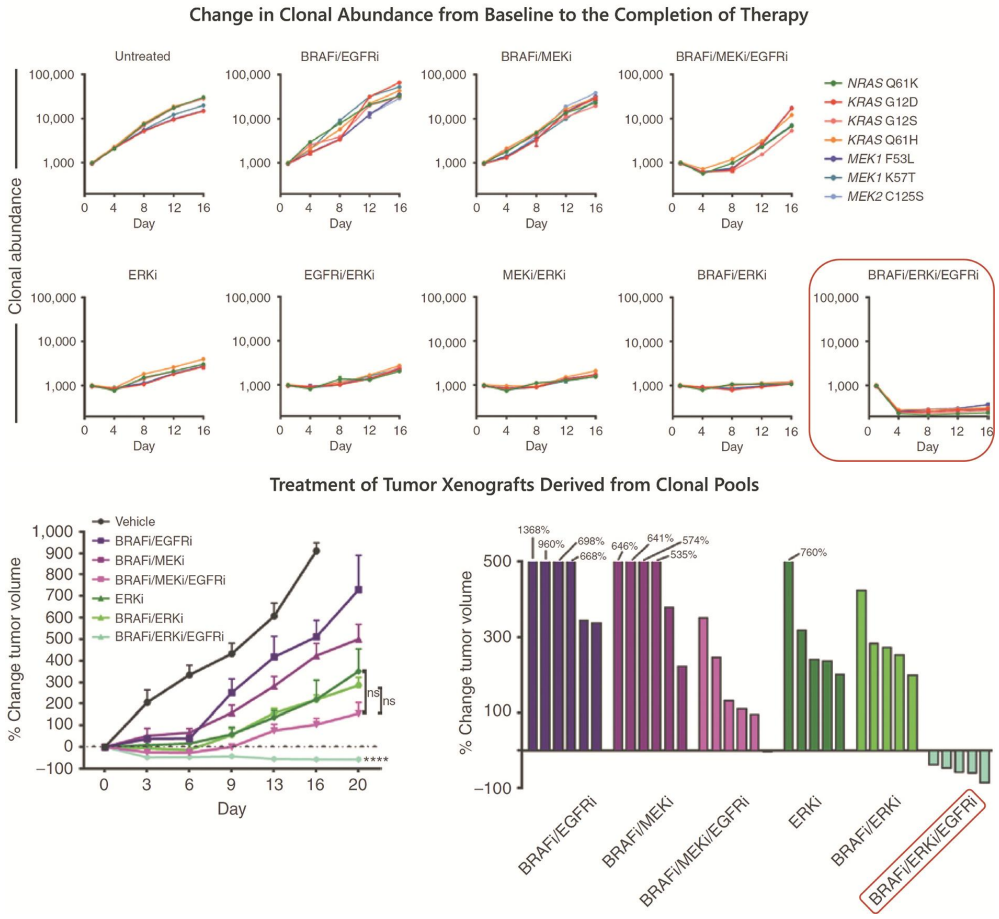


Rationale for combining with other targeted agents

Since ERK is the terminal node of the RAS/MAPK pathway and activates hundreds to thousands of downstream proteins, we believe an ERK inhibitor is an attractive combination partner to achieve maximal inhibition of the RAS/MAPK pathway. In combination with RTK, SHP2, RAS, and/or RAF inhibitors, an ERK inhibitor has the potential to further inhibit RAS/MAPK pathway signaling and delay development of resistance. The RAS/MAPK pathway is regulated by negative feedback mechanisms that desensitize the pathway when active. In the presence of a RAS/MAPK pathway inhibitor, pathway signaling activity is reduced, alleviating negative feedback mechanisms and sensitizing the RAS/MAPK pathway to upstream signaling. This sensitization can prevent RAS/MAPK pathway inhibitors from achieving therapeutic levels of pathway inhibition. Another challenge for RAS/MAPK pathway inhibitors is the activation of RTKs that can generate sufficient upstream RAS/MAPK pathway signaling pressure that overwhelms RAS/MAPK pathway inhibitors. Combining upstream RAS/MAPK pathway inhibitors with an ERK inhibitor can potentially enable pathway inhibition in the absence of negative feedback and in the presence of additional upstream signaling pressure. The activity of RAS/MAPK pathway inhibitors can also be bypassed by the emergence of activating mutations in RAS/MAPK pathway proteins that lie downstream. For example, activating mutations in RAS can emerge as a resistance mechanism against EGFR inhibitors in mutant EGFR NSCLC, and MEK mutations can develop as a resistance mechanism against BRAF plus MEK inhibitors in melanoma. As the terminal node of the RAS/MAPK pathway, ERK inhibition can help address activating RAS, RAF, or MEK mutations that can act as resistance mechanisms to RAS/MAPK pathway inhibitors.

BRAF V600E CRC as an example that ERK inhibition can reduce the emergence of resistance

While the combination of a BRAF inhibitor and an EGFR inhibitor (encorafenib plus cetuximab) has been approved for the second- and third-line treatment of BRAF V600E CRC, only 20% of patients experience an objective response, and only half of these responses last more than 4 months. Therefore, emergence of resistance is a major therapeutic barrier to long-term clinical benefit. Analysis of post-progression biopsies and cell-free DNA samples revealed a heterogeneous collection of resistance mutations in the RAS/MAPK pathway, including KRAS, NRAS, MEK1, and MEK2. A set of published experiments conducted by researchers at Massachusetts General Hospital modeled this clinical resistance in a pooled clone model system and xenograft models. Seven different resistant BRAF V600E CRC cells, each engineered with one of these resistance mutations, were introduced at 1% allele frequency into a pool of sensitive BRAF V600E CRC cells. Of all combination therapies evaluated, a triple blockade of BRAF, EGFR, and ERK (identified with a red box around the image below) proved to be the most effective in reducing tumor volume and preventing the emergence of resistance clones.



These data suggest that: (1) in tumors that are highly addicted to the RAS/MAPK pathway, such as BRAF V600E CRC, resistance mechanisms are dominated by reactivation of this critical pathway via mutations within the pathway, and (2) an ERK inhibitor can potentially overcome these resistance mechanisms by blocking the terminal node of the pathway. Therefore, ERAS-007 may be combined with other RAS/MAPK pathway inhibitors (e.g., KRAS G12C inhibitor and BRAF inhibitor) as either initial therapy or in the post-progression setting in patients who have been treated with RAS/MAPK pathway inhibitors.

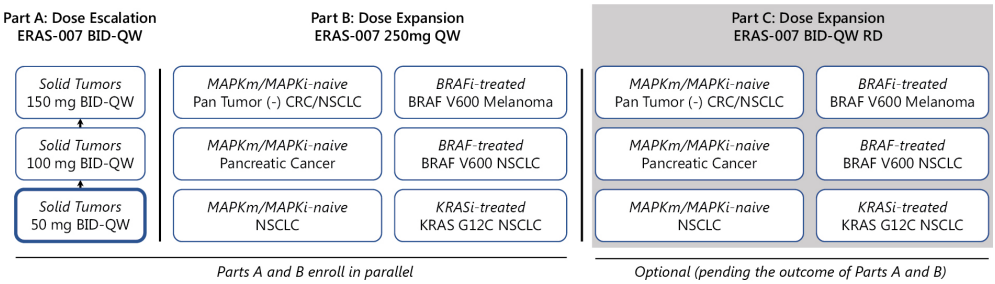
Development strategy for ERAS-007

We are pursuing a broad clinical development plan for ERAS-007 across multiple tumor types that includes both monotherapy and combinations with approved and investigational agents. The first series of trials are four POC trials in solid tumors, NSCLC, CRC, and AML. While providing POC data, these trials may be expanded to enable potential accelerated approvals in their respective indications:

1. **HERKULES-1** for a potential tissue agnostic indication in solid tumors with RAS/MAPK pathway alterations
2. **HERKULES-2** for EGFR mutant or KRAS mutant NSCLC, with potential to subsequently expand to other NSCLC populations
3. **HERKULES-3** for KRAS mutant, NRAS mutant, or BRAF V600E CRC initially, with potential to subsequently expand to other GI cancer populations
4. **HERKULES-4** for FLT3 mutant AML, with potential to subsequently expand to other hematological malignancy populations

We anticipate multiple data readouts from our HERKULES clinical trials beginning in 2022, including a Phase 1b monotherapy data readout from HERKULES-1 in the second half of 2022, a Phase 1b combination data readout from HERKULES-2 in 2023, and a Phase 1b combination data readout from HERKULES-3 between the fourth quarter of 2022 and the first half of 2023.

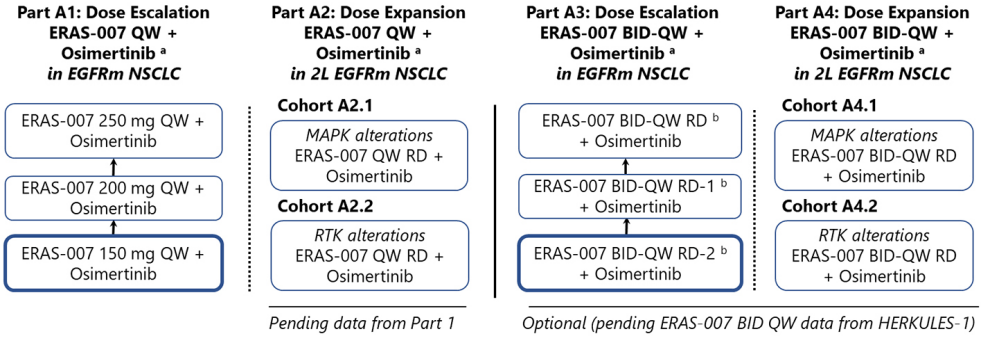
As shown in the schema below, **HERKULES-1** is a Phase 1b/2 trial evaluating ERAS-007 monotherapy in patients with solid tumors. In **Part A**, a dose-finding portion will determine the maximum tolerated dose (MTD) and RD when ERAS-007 is given BID-QW, the rationale of which was described earlier in the Phase 1 PK pharmacokinetics section. The primary endpoint of this part is to characterize the safety profile of ERAS-007 when given on a BID-QW schedule. Testing this alternative intermittent dosing schedule will provide us with three schedules (QD, QW, and BID-QW) from which to select the optimal dose and schedule to combine with ERAS-601 (our first MAPKlamp) and other agents. When the ERAS-601 RD is identified from the FLAGSHP-1 trial (described below), we expect to amend the HERKULES-1 trial protocol to identify the optimal dose and schedule for the ERAS-007 and ERAS-601 combination and to evaluate the preliminary efficacy and safety of this MAPKlamp in multiple tumor types. In **Part B**, which is running in parallel with Part A (since monotherapy responses were observed with the QW schedule in the completed Phase 1 clinical trial of ERAS-007), separate cohorts are evaluating ERAS-007 QW in patients with NSCLC, pancreatic cancer, melanoma, and other solid tumors that harbor RAS/MAPK pathway alterations. These patient populations have high unmet medical needs, as they have exhausted all approved therapies. Patients in some cohorts have not been previously treated with any RAS/MAPK pathway inhibitors (e.g., KRAS, BRAF, or MEK inhibitors), since none of these inhibitors are approved for use in these patients. Patients in other cohorts have been previously treated with RAS/MAPK pathway inhibitors when these agents are part of standard of care. The primary endpoint is an assessment of anti-tumor activity of ERAS-007 in the patient populations. We dosed the first patient in **HERKULES-1** in May 2021.



As shown in the schema below, **HERKULES-2** is a Phase 1b/2 master protocol evaluating novel combination therapies for patients with NSCLC. Sub-Study A is focused on patients with EGFR mutant NSCLC, representing approximately 184,000 new patients worldwide each year, and Sub-Study B is focused on patients with KRAS G12C mutant NSCLC, representing approximately 240,000 new patients worldwide each year. The master protocol for this clinical trial may be expanded in the future to include other novel combinations and indications in NSCLC. We dosed the first patient in **HERKULES-2** in September 2021.

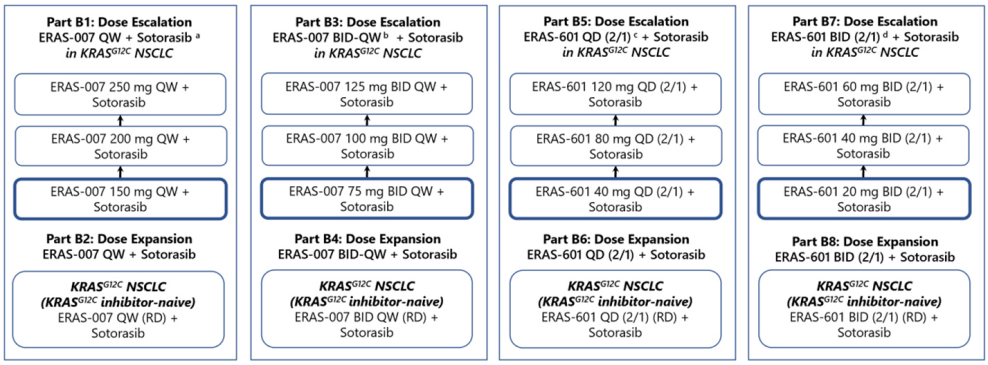
Sub-Study A. For patients with EGFR mutant NSCLC, the standard of care for newly diagnosed patients with metastatic disease is osimertinib, an EGFR inhibitor. While 77% of patients respond initially, nearly all patients experience disease progression while on osimertinib treatment, and no other targeted therapy is approved in the post-osimertinib setting. Biomarker analyses of tumors that developed resistance to osimertinib showed that RAS/MAPK pathway alterations make up a substantial portion of resistance mechanisms. With the ERAS-007 plus osimertinib combination, we are evaluating in this trial whether combined ERK and EGFR inhibition can overcome osimertinib resistance in EGFR mutant NSCLC with RAS/MAPK pathway alterations. In **Part A1**, an ERAS-007 QW RD will be identified in combination with osimertinib. The primary endpoint will be a safety assessment of this combination. In **Part A2**, this combination regimen will be evaluated in EGFR mutant NSCLC patients who have progressed on initial osimertinib monotherapy. The primary endpoint will be an assessment of anti-tumor activity. **Part A3** will identify the RD of ERAS-007 on a BID-QW schedule in combination with osimertinib, with a safety assessment as the primary endpoint. **Part A4** will evaluate this combination with BID-QW schedule in a larger patient population, with a preliminary assessment of anti-tumor activity as the primary endpoint.

HERKULES-2 Sub-Study A: EGFR mutant NSCLC



Sub-Study B. For patients with KRAS G12C NSCLC, the standard of care for previously-treated patients with metastatic disease is sotorasib, a KRAS G12C inhibitor. Only 36% of patients respond initially, and nearly all patients experience disease progression. Biomarker analyses of tumors that developed resistance to a KRAS G12C inhibitor showed that RAS/MAPK pathway alterations make up a substantial portion of resistance mechanisms, highlighting the strong reliance of KRAS G12C NSCLC on this pathway. With the ERAS-007 plus sotorasib and ERAS-601 plus sotorasib combinations in Sub-Study B, we are evaluating whether combined ERK and KRAS G12C inhibition can lead to broader and deeper responses than sotorasib monotherapy, as well as prolonged efficacy and SHP2 and KRAS G12C inhibition. In **Part B1 and Part B3**, the RDs for ERAS-007 on QW and BID-QW schedules will be identified in combination with sotorasib, respectively. The primary endpoint will be a safety assessment of combinations. In **Part B2 and Part B4**, these combination regimens will be evaluated in KRAS G12C mutant NSCLC patients who are naïve to KRAS G12C inhibitor treatment. The primary endpoint will be an assessment of anti-tumor activity. **Part B5 and Part B7** will identify the RDs of ERAS-601 dosing schedules in combination with sotorasib, respectively. The primary endpoint will be a safety assessment of the combinations. **Part B6 and Part B8** will evaluate these combinations in a larger patient population, respectively, with a preliminary assessment of anti-tumor activity as the primary endpoint.

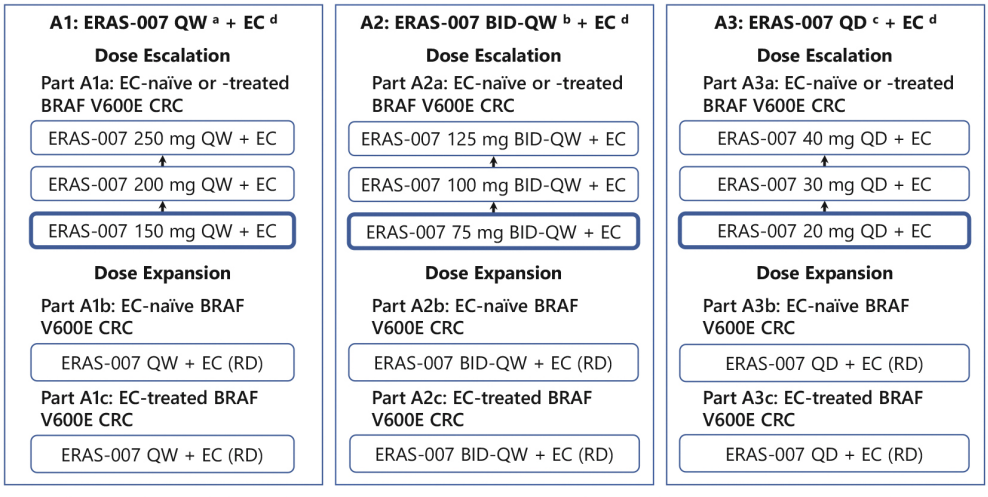
HERKULES-2 Sub-Study B: KRAS G12C NSCLC



As shown in the schema below, **HERKULES-3** is a Phase 1b/2 master protocol evaluating novel combination therapies for patients with GI malignancies. Sub-Study A is focused on patients with BRAF V600E mutant CRC, representing approximately 180,000 new patients worldwide each year, and Sub-Study B, on patients with KRAS or NRAS mutant CRC and KRAS mutant pancreatic cancer, representing over 1.1 million new patients worldwide each year. The master protocol for this clinical trial may be expanded in the future to include other novel combinations and indications in GI cancers. We dosed the first patient in **HERKULES-3** in September 2021.

Sub-Study A. The standard of care for patients with BRAF V600E CRC in the second-/third-line metastatic setting is encorafenib plus cetuximab, an anti-BRAF and anti-EGFR doublet therapy. Only 20% of patients respond, nearly all patients experience disease progression, and the median overall survival is less than 9 months. The prognosis for patients in the post-encorafenib plus cetuximab setting is worse. In preclinical models of BRAF V600E CRC, the addition of an ERK inhibitor to BRAF inhibitor plus EGFR inhibitor substantially enhanced anti-tumor activity and reduced the development of resistance to BRAF inhibitor plus EGFR inhibitor. In **Part A1**, the ERAS-007 QW RD will be identified in combination with encorafenib plus cetuximab, with a safety assessment of the combination as the primary endpoint. The RD will be evaluated further in two patient populations: BRAF V600E CRC patients who are naïve to encorafenib plus cetuximab treatment and who have been treated with encorafenib plus cetuximab. The primary endpoint will be an assessment of anti-tumor activity. **Parts A2 and A3** contain optional cohorts that would allow us to evaluate alternative dosing schedules of ERAS-007 in combination with encorafenib and cetuximab, depending on the results from Part A1.

HERKULES-3 Sub-Study A: BRAF V600E CRC

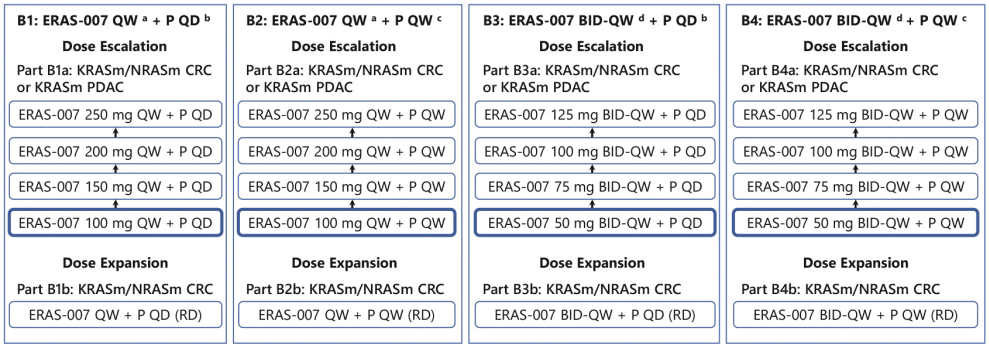


Dose Escalation parts may not open at the same time. Dose Expansion parts may open after RDs have been identified in the Dose Escalation parts.

[a] ERAS-007 QW: ERAS-007 oral once a week
[b] ERAS-007 BID-QW: ERAS-007 oral twice a day on a single day each week
[c] ERAS-007 QD: ERAS-007 oral once a day
[d] EC: Encorafenib 300 mg oral daily + Cetuximab 500 mg/m^2 intravenous infusion once every 2 weeks

Sub-Study B. The standard of care for patients with KRAS or NRAS mutant CRC in the third-line metastatic setting is typically chemotherapy. However, when treated with regorafenib (a multi-kinase inhibitor) or TAS-102 (chemotherapy), less than 5% of patients respond, nearly all patients experience disease progression, and the median overall survival is around 6 months. In preclinical models of KRAS or NRAS mutant CRC, the combined inhibition of cycle and RAS/MAPK pathways demonstrated substantial anti-tumor activity in these highly resistant tumor types. In **Part B1 and Part B2**, the ERAS-007 QW RD will be identified in combination with two different schedules of palbociclib, with a safety assessment of the combination as the primary endpoint. In **Part B3 and Part B4**, the alternative schedule of ERAS-007 given BID-QW may be evaluated. One RD and schedule will be evaluated further in previously-treated patients with KRAS or NRAS mutant CRC. The primary endpoint will be an assessment of anti-tumor activity.

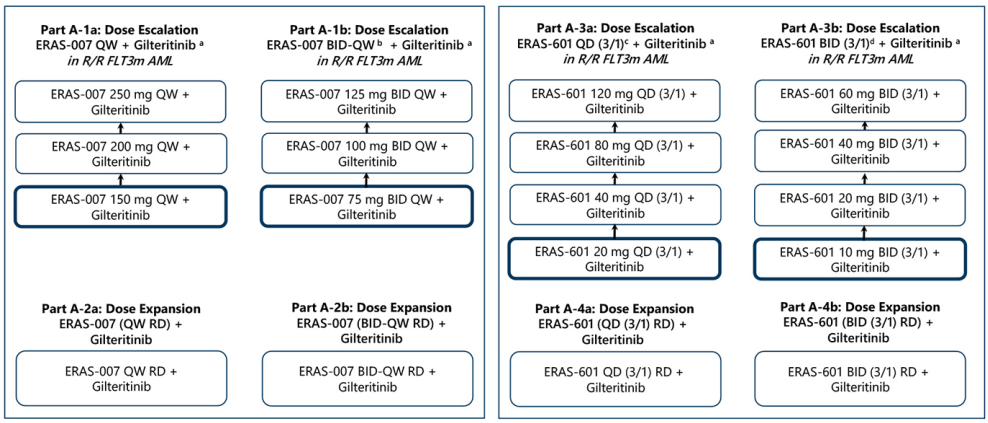
HERKULES-3 Sub-Study B: KRAS or NRAS mutant CRC



Both ERAS-007 and Palbociclib will be escalated in dose. Dose Escalation parts may not open at the same time. Dose Expansion parts may open after RDs have been identified in the Dose Escalation parts.

[a] ERAS-007 QW: ERAS-007 oral once a week
[b] P QD: Palbociclib oral daily for 21 consecutive days followed by 7 days off in a 28-day cycle
[c] P QW: Palbociclib oral once a week
[d] ERAS-007 BID-QW: ERAS-007 oral twice a day on a single day each week

As shown in the schema below, **HERKULES-4** is a Phase 1b/2 clinical trial evaluating novel combination therapies for patients with hematological malignancies. Sub-Study A is focused on patients with FLT3 mutant AML, which represents 30-40% of all AML, or approximately 61,000 new patients worldwide each year. The standard of care for patients with relapsed/refractory AML is gilteritinib, a FLT3 inhibitor. Only 14% of patients achieve a complete remission, nearly all patients experience disease progression, and the median overall survival is less than 10 months. While FLT3 is the most commonly altered gene in AML, alterations along the entire RAS/MAPK pathway are also prevalent, including SHP2, KRAS, NRAS, and BRAF, suggesting dual FLT3 and SHP2 inhibition or FLT3 and ERK inhibition may improve the efficacy of gilteritinib monotherapy. In **Part A1**, the RD of ERAS-007 in two schedules in combination with gilteritinib will be identified, with a safety assessment as the primary endpoint. In **Part A2**, a selected RD and schedule of ERAS-007 will be evaluated further in an expansion cohort of patients with relapsed/refractory FLT3 mutant AML. The primary endpoint will be an assessment of anti-tumor activity. In **Part A3**, the RD of ERAS-601 in two schedules in combination with gilteritinib will be identified, with a safety assessment as the primary endpoint. A selected RD and schedule of ERAS-601 will be evaluated further in an expansion cohort of patients with relapsed/refractory FLT3 mutant AML. The master protocol may be expanded in the future to include additional sub-studies of other novel combinations and indications in hematological malignancies.



[a] Gilteritinib 120 mg PO daily
[b] BID-QW = Twice a day on a single day each week
[c] QD (3/1) = daily for 21 days followed by a 7-day break (3 weeks on, 1 week off), on a 28-day cycle
[d] BID (3/1) = twice daily for 21 days followed by a 7-day break (3 weeks on, 1 week off), on a 28-day cycle

These and other trial designs may be modified based on evolving clinical and nonclinical data, as well as feedback from regulatory agencies.

ERAS-601: our SHP2 inhibitor

ERAS-601 is designed to be a potent and selective oral inhibitor of SHP2. In preclinical studies, ERAS-601 has demonstrated strong in vitro potency relative to other SHP2 inhibitors (RMC-4550 and TNO155) and favorable absorption, distribution, metabolism, and excretion (ADME) and PK properties, which we believe support its use in a broad range of combination therapies. ERAS-601 is the second prong of our first MAPKlamp with ERAS-007. In our first-in-human trial, FLAGSHP-1, we are evaluating the safety, tolerability, PK, PD, and preliminary anti-tumor activity of ERAS-601 in patients with advanced or metastatic solid tumors. We believe that approximately 4.9 million patients worldwide per year could benefit from ERAS-601 in combination with other agents, including ERAS-007.

Preclinical profile of ERAS-601

In a biochemical assay, ERAS-601 potently and selectivity inhibited full length SHP2 with an IC50 value of 4.6 nM as shown in the table on the left below. By binding to an allosteric pocket that is present only in the inactive conformation of SHP2, ERAS-601 inhibited SHP2 activity by stabilizing the protein in the inactive state. No ERAS-601 activity was observed against 10 other phosphatases (including SHP1), and ERAS-601 showed no strong inhibition of any kinase in a 300-kinase panel (i.e., less than 30% inhibition at 1 µM), demonstrating high selectivity as shown in the table on the right below.

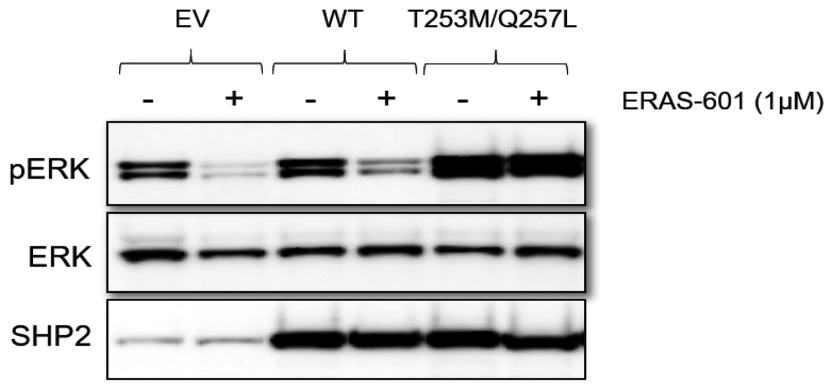
Compound	Biochemical SHP2 inhibition IC50 (nM)
ERAS-601	4.6

ERAS-601 demonstrated no off-target activity in 300 kinase (<30% inhibition @ 1µM) and 12 phosphatase panels (IC50 >10µM)

	Phosphatase	% inhibition at 10 µM ERAS-601 relative to DMSO control
Off target	PP1B	0
	PP1A	0
	PP2A Alpha / PP2R1A complex	1
	PTPRC	6
	DUSP22	0
	PTPN2	3
	PTPN7	0
	PTPN12	0
	PTPN1	0
	PTPN6 (SHP1) full length	0
	PTPN11 (SHP2) catalytic domain	0
On target	PTPN11 (SHP2) full length	100

Biochemical on-target activity of ERAS-601 against SHP2 (left) and biochemical activity of ERAS-601 in a panel of 12 phosphatases (right). PTPN11 (SHP2) catalytic domain protein is a truncated form of SHP2 (246 aa – 593 aa). This truncated form contains a phosphatase domain and is missing two regulatory domains. The PTPN11 (SHP2) catalytic domain does not harbor the binding site of ERAS-601 due to these missing domains, while the PTPN11 (SHP2) full length protein does harbor ERAS-601's binding site.

ERAS-601's activity against SHP2 was shown in a cell-based assay using a SHP2 inhibitor-sensitive cell line, NCI-H1666, which was transduced with either wildtype SHP2 or mutant SHP2 (T253M / Q257L). ERAS-601 inhibited RAS/MAPK pathway signaling, shown by a decrease of phosphorylated ERK (pERK) relative to total ERK in the figure below, but ERAS-601 had no effect on RAS/MAPK pathway signaling in the double mutant SHP2 cell line. These cell data support that ERAS-601's cellular activity is due to SHP2 binding and not due to off-target activity. In vitro cell line screening revealed potent ERAS-601 activity in EGFR, KRAS, NF1, and class III BRAF mutant cell lines. Generally, ERAS-601 showed greater activity in RAS/MAPK pathway mutant cell lines that relied on upstream RTK signaling, such as EGFR, NF1 loss-of-function, and class III BRAF mutants. ERAS-601 did not show activity in cell lines that harbored activating RAS/MAPK pathway activating mutations that were not dependent on upstream signaling, such as the melanoma BRAF V600E mutant cell line A375.



Western blot of the NCI-H1666 cell line transduced with empty vector (EV), wildtype SHP2 (WT), and double mutant SHP2 (T253M and Q257L). The two T253M and Q257L mutations in SHP2 prevent ERAS-601 from binding SHP2 via steric hindrance. ERAS-601 at 1 μM inhibited pERK in empty vector and SHP2 wildtype transduced cells. ERAS-601 at 1 μM did not inhibit pERK in cells transduced with double mutant SHP2, thereby suggesting that ERAS-601's cellular activity is due to SHP2 binding.

The ADME/PK properties of ERAS-601 have been extensively evaluated in non-clinical studies. As shown in the table below, ERAS-601 demonstrated favorable physicochemical and PK properties, including low risk of drug-drug interaction (DDI), negligible CYP enzyme inhibition, and moderate plasma protein binding. It also showed high oral bioavailability and low clearance across multiple animal species. We believe these properties support ERAS-601's use in a broad range of combination therapies.

Assay	ERAS-601
cLogP/PSA	<1/<130
MW	<600
PBS solubility (μM)	>300
Caco2 permeability at 10 μM, P_{app} (AB/BA) (10^{-6}, cm/s)	2.57/27.5
Plasma protein binding, Free fraction % M/R/D/H	26/12/35/33
Stability in liver microsomes M/R/D/H	Low Clearance
Inhibition of CYP 3A4, 2C9, 2D6, IC50 (μM)	>100
CYP3A4 TDI	No flag
hERG Q-patch IC50 (μM)	>30
GLP hERG IC50 (μM)	12

Preclinical anti-tumor activity of ERAS-601

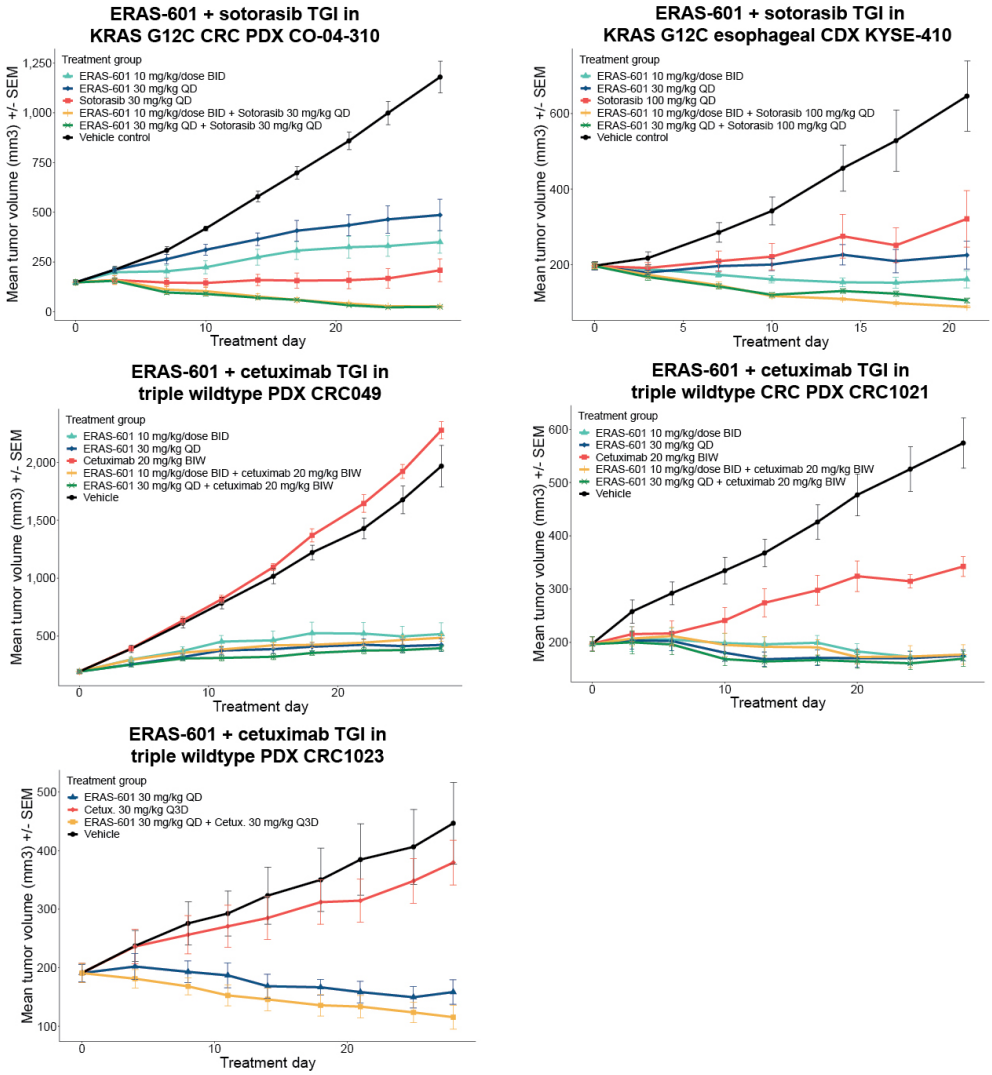
As shown in the table below, ERAS-601 significantly inhibited tumor growth as a monotherapy in 25 in vivo models, including KRAS G12C, KRAS G12D, KRAS G12V, EGFR, BRAF class I and III, and NF1 loss-of-function mutations. In 21 models, ERAS-601 was well tolerated and showed significant TGI at QD and BID dose schedules. In a PK/PD study, ERAS-601 also achieved time and dose-dependent increases in plasma concentrations and concomitant reductions in RAS/MAPK pathway signaling, as measured by pERK, in the KRAS G12C mutant NSCLC xenograft model NCI-H358. Tumor pERK1/2 levels were reduced by more than 50% when ERAS-601 total plasma concentrations exceeded or approximated the IC50/fu, which is the in vitro cellular pERK IC50 unbound fraction in plasma.

Mutation	Model ID	Tumor type	Antitumor activity of ERAS-601	
			10 mg/kg BID (% TGI)	30 mg/kg QD (% TGI)
$KRAS^{G12C}$	NCI-H358	NSCLC	101%***	71%**
	LUN156	NSCLC	87%**	86%*
	MIA PaCa-2	PDAC	91%***	79%***
	CO-04-0310	CRC	80%***	67%***
	CR022	CRC	72%***	75%***
	KYSE-410	Esophageal	108%**	94%**
$KRAS^{G12D}$	LUN232	NSCLC	Not evaluated	73%***
	GP2D	CRC	60%**	71%**
	LS513	CRC	66%*	77%**
	LUN137	CRC	Not evaluated	82%*
$KRAS^{G12V}$	H441	NSCLC	Not evaluated	97%***
EGFR	HCC827 (Exon19Del)	NSCLC	118%***	126%***
	HCC827-ER1 (Exon19del and MET amp)	NSCLC	97%***	102%***
	NCI-H820 (EGFR Exon19Del, EGFR T790M, MET amp)	NSCLC	84%**	81%**
	KYSE-520 (amplification)	Esophageal	100%***	101%***
BRAF class I (BRAF V600E)	WiDr	CRC	67%***	68%***
BRAF class III	NCI-H508	CRC	136%**	135%**
	LUN023	NSCLC	100%*	123%**
$NF1^{LOF}$	MeWo	Melanoma	86%***	85%***
	NCI-H1838	NSCLC	140%**	144%**
	LUN150	NSCLC	167%***	167%***
	LU6484	NSCLC	77%***	83%***
Triple wildtype	CRC049	CRC	82%***	87%***
	CRC1021	CRC	106%***	106%***
	CRC1023	CRC	Not evaluated	113%**

*ERAS-601 exhibited significant TGI relative to vehicle control (p-value < 0.05) in 11 KRAS mutant, four EGFR mutant, three BRAF mutant, four NF1 LOF mutant, and three triple wildtype (KRAS/NRAS/BRAF wildtype) CDX and PDX models. Significant TGI was observed at both 30 mg/kg QD and 10 mg/kg BID doses. *p-value < 0.05 **p-value < 0.01 ***p-value < 0.001 (p-values assessed relative to vehicle control)*

Preclinical activity of ERAS-601 combination therapies

As shown in the figures below, when combined with KRAS G12C and EGFR inhibitors, ERAS-601 showed significantly greater TGI than dosing of these inhibitors as monotherapies. This benefit was observed in models that harbored mutations both upstream and downstream of SHP2. These ERAS-601 combinations were generally well tolerated across the tested models as demonstrated by the minimal percentage body weight changes observed.



*ERAS-601 combined with sotorasib and cetuximab showed significant TGI in five CDX and PDX models. The ERAS-601 + sotorasib (KRAS G12C inhibitor) showed significant TGI relative to vehicle control (p-value < 0.01) and monotherapy arms (p-value < 0.05) in KRAS G12C mutant CRC PDX and esophageal CDX models. The ERAS-601 + cetuximab (EGFR inhibitor) combination showed significant TGI in three triple wildtype (*KRAS/NRAS/BRAF wildtype*) CRC PDX models relative to vehicle control (p-value < 0.01) and cetuximab monotherapy arms (p-value < 0.001).*

Development strategy for ERAS-601

Our clinical development plan aims to advance ERAS-601 in combination with other targeted agents to prevent and overcome adaptive resistance mechanisms in order to achieve more durable clinical benefit. In the fourth quarter of 2020, we began evaluating the safety and tolerability of ERAS-601 in a first-in-human dose escalation trial in patients with advanced or metastatic solid tumors in our FLAGSHP-1 trial. The primary endpoints of this trial are assessments of safety and anti-tumor activity. After we have identified the monotherapy RD of ERAS-601, we will evaluate rational combinations with ERAS-601, including dual SHP2 and EGFR inhibition focused on CRC (cetuximab combination in FLAGSHP-1), dual SHP2 and KRAS G12C inhibition in NSCLC (sotorasib combination in HERKULES-2), and dual SHP2 and FLT3 inhibition in AML (gilteritinib combination in HERKULES-4), as well as dual SHP2 and ERK inhibition with ERAS-007 (our first, innovative MAPKlamp approach) in our HERKULES series of clinical trials. Other agents for potential combinations include approved RTK inhibitors, RAS/MAPK pathway inhibitors, and/or investigational agents we are developing, such as ERAS-3490. Given the wide range of cancers that are dependent on SHP2, we believe ERAS-601 could serve as a backbone for compelling combination therapies to prolong survival for patients.

We anticipate a Phase 1 monotherapy data readout from our FLAGSHP-1 trial in the second half of 2022 and a Phase 1b combination data readout in triple wildtype (KRAS/NRAS/BRAF wildtype) CRC between the fourth quarter of 2022 and the first half of 2023.

ERAS-3490: our CNS-penetrant KRAS G12C inhibitor program

RAS proteins are the most frequently mutated oncoproteins, with KRAS being the most abundantly expressed RAS isoform. Despite decades of research focused on KRAS as a target of interest in oncology, it was generally deemed to be undruggable until 2013, when Dr. Shokat and his colleagues at UCSF identified a new binding pocket, the "switch II pocket" (S-IIP), via crystallography studies. Importantly, they also described the discovery of small molecules that irreversibly bound to this pocket on KRAS G12C – a finding that turned an undruggable target into a druggable one.

This historic discovery spurred multiple companies to develop KRAS G12C inhibitors, including the recently approved sotorasib and others that are currently in clinical trials. While single agent activity to date has been most promising in NSCLC, opportunities remain for improvement in CNS penetration to be able to address the propensity of NSCLC to metastasize to the brain. Worldwide, KRAS G12C mutations affect approximately 350,000 patients with cancer, with NSCLC comprising two-thirds of these patients, and CRC one-sixth of these patients. NSCLC has the highest rate of CNS metastases, and the CNS is a site of progression in approximately 25% to 50% of patients on standard of care therapies. Hence, we believe a CNS-penetrant KRAS G12C inhibitor, either as a monotherapy or in combination therapies, would represent an important advance in maintaining systemic disease control, prolonging response, and preventing CNS progression. In preclinical in vivo experiments, an approved KRAS G12C inhibitor and a late clinical-stage KRAS G12C inhibitor (sotorasib and adagrasib, respectively, and together, the reference compounds) were poorly CNS-penetrant, detectable in the CNS at less than 10% of the plasma level. We have been designing and optimizing KRAS G12C inhibitors that have shown comparable or superior anti-tumor activity to the reference compounds and robust ability to cross the blood-brain barrier (BBB) in order to address this key limitation.

Preclinical profile of ERAS-3490 and other pre-candidates

Our team discovered a novel scaffold that binds the S-IIP in a different configuration which allows us to optimize potency while also enabling high CNS penetration. We have discovered and are characterizing five KRAS G12C inhibitor pre-candidates based on this scaffold that have promising potency, selectivity, and physicochemical properties relative to the reference compounds.

Importantly, all five pre-candidates (ERAS-3490, ERAS-3691, ERAS-3599, ERAS-3537, and ERAS-3788) have shown attractive physicochemical properties relative to the reference compounds, especially with respect to in vitro CNS penetration:

Parameter	3490	3691	3599	3537	3788	Reference compounds
Mouse AUC_{po}/D (hr*kg*ng/mL/mg)	↑ 693	↔ 597	↑ 1,333	↔ 535	↔ 326	102 - 637
Rat $brain_{total}$ / $plasma_{total}$ (%)	↑ 52%	↑ 13%	↑ 66%	↑ 68%	↑ 11%	1 - 6%
Rat brain concentration (ng / g)	↑ 156	↔ 32	↑ 176	↑ 290	↑ 91	6 - 36
P-gp substrate ratio	↑ 1.1	↑ 4.1	↑ 2.7	↑ 8.3	↑ 4.0	30.9
Human LM metabolic stability (CL normalized to hepatic blood flow)	↔ 0.7	↑ 0.5	↔ 0.6	↑ 0.4	↑ 0.5	0.7 - 0.8
Mouse LM metabolic stability (CL normalized to hepatic blood flow)	↔ 0.8	↔ 0.6	↔ 0.7	↔ 0.7	↑ 0.4	0.4 - 0.9
In vitro potency (4 hr pERK IC50, nM / RAS Initiative KRAS G12C 3D 5-day viability IC50, nM)	↔ 13 / 4	↘ 58 / 9	↘ 37 / 15	↔ 21 / 9	↔ 12 / 2	17 - 31 / 1 - 4

Five CNS-penetrant KRAS G12C pre-candidates showed comparable in vitro and in vivo PK characteristics and in vitro potency to the reference compounds. ERAS-3490 and ERAS-3599 exhibited superior exposure and CNS penetration relative to the reference compounds, and ERAS-3537 and ERAS-3788 exhibited superior CNS penetration relative to the reference compounds. A green arrow indicates a favorable value relative to the reference compounds, an orange arrow indicates a comparable value, and a red arrow indicates an inferior value. P-gp substrate ratios were characterized in a P-gp expressing MDCK cell line. The P-gp substrate ratio for a single reference compound is shown. Per compound, a P-gp substrate ratio was calculated by dividing its efflux ratio in absence of a P-gp inhibitor by its efflux ratio in presence of a P-gp inhibitor. Compounds with lower P-gp substrate ratios are less likely to have CNS penetration limited by P-gp mediated efflux. LM stands for liver microsome and CL stands for clearance. Liver microsome stability is normalized to hepatic blood flow to better enable cross-species comparisons. In vitro potency was characterized by both pERK inhibition and cell viability. Both potency assays used the RAS Initiative KRAS G12C cell line.

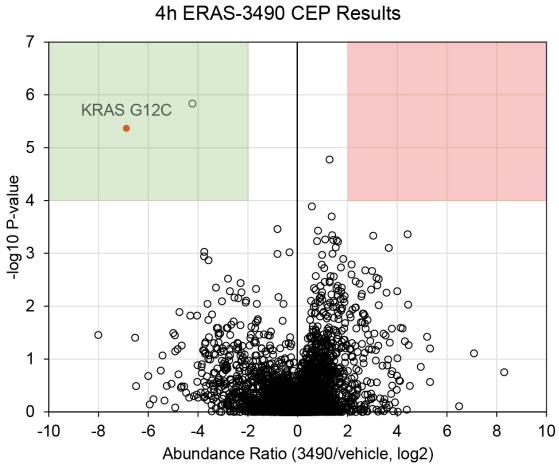
We are aiming to optimize CNS penetration while maintaining comparable potency and metabolic stability to the reference compounds. This is a highly challenging balancing act to achieve because typically, the attributes of a molecule that endow it with potency against the S-IIP (e.g., hydroxyl group moiety for one of the reference compounds) are the very properties that compromise its ability to cross the BBB. Our goal with our CNS-penetrant KRAS G12C inhibitor discovery program has been to significantly increase CNS penetration as measured by the rat $brain_{total}$/$plasma_{total}$ ratio (RBP, measured in percent). Reference compounds have RBPs ranging from 1% to 6%. Our pre-candidates have RBPs ranging from 11% to 68% (ERAS-3537 [68%], ERAS-3599 [66%], ERAS-3490 [52%], ERAS-3691 [13%], and ERAS-3788 [11%]), and therefore have the potential to demonstrate better CNS penetration in the clinic than the reference compounds. Our team has significant experience developing targeted CNS-penetrant compounds, including entrectinib (ROZLYTREK), an FDA-approved product for ROS1 fusion-positive NSCLC and NTRK fusion-positive solid tumors, including those in patients with CNS metastases. Using the rat brain assays, entrectinib has an RBP of 16% and an absolute value of 80 ng/g rat brain concentration.

Furthermore, ERAS-3490 and ERAS-3599 are not P-glycoprotein (P-gp) substrates, meaning they are less likely to be effluxed, or pumped, from the brain back out into the blood. This feature further enhances the potential for high CNS penetration of these two pre-candidates relative to the other three pre-candidates and reference compounds that are P-gp substrates.

Selection of ERAS-3490 as DevCan

ERAS-3490 was derived from a novel scaffold and potently inhibited the proliferation of 17 KRAS G12C cell lines with IC50s ranging from 1.4 nM to 82 nM. These values were comparable to reference compounds, which showed IC50s ranging from 2 nM to 35 nM in the same cell line panel.

ERAS-3490 was also a highly selective inhibitor of KRAS G12C, which is supported by ERAS-3490 adducting with only one other peptide when incubated for 4 hours in the KRAS G12C mutant cell line NCI-H358. The figure below shows that KRAS G12C was strongly (x-axis) and significantly depleted (y-axis) when incubated with ERAS-3490, indicating that it strongly and selectively bound to KRAS G12C.

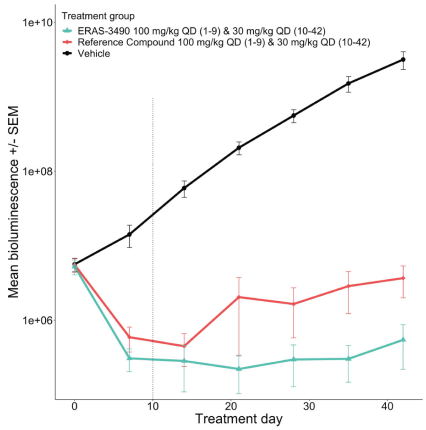


ERAS-3490 selectively bound to KRAS G12C protein in cell-based Cysteine Enrichment Proteome (CEP) assays. This assay quantifies the covalent binding activity of cysteine-targeting compounds, like ERAS-3490, after being incubated with NCI-H358 cells for 4 hours at 1 µM. The depletion of cysteine-containing proteins in the compound treatment sample relative to vehicle treatment indicates that the compound is covalently binding to that peptide. The x-axis represents the magnitude of protein depletion, and the y-axis represents the significance of depletion. Proteins in the shaded green region are significantly depleted by at least 4-fold (p-value < 1.0e-4) and proteins in the shaded red region are significantly enriched by at least 4-fold (p-value < 1.0e-4). Both compounds were profiled in the KRAS G12C mutant NSCLC cell line NCI-H358. In the ERAS-3490 study, KRAS G12C and one other protein, PDS5, were the only two proteins out of 2,602 detected proteins that were significantly depleted.

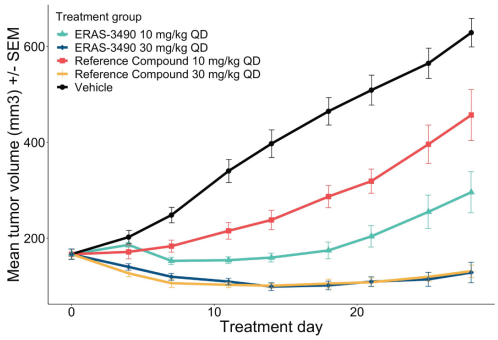
In an exploratory intracranial KRAS G12C NSCLC CDX NCI-H1373 model in panel (A) of the figure below, ERAS-3490 demonstrated that its superior physicochemical properties and PK profile enabled it to significantly outperform a reference compound in anti-tumor activity, both at the initial dose of 100 mg/kg QD for the first nine days and upon lowering the dose to 30 mg/kg for the remainder of the study. In panel (B), ERAS-3490 demonstrated comparable to superior anti-tumor activity at two different doses relative to a reference compound in a subcutaneous pancreatic cancer model (MIA PaCa-2).

The PK/PD profile help explain why ERAS-3490 outperforms a reference compound in the intracranial model with its superior PK profile, with high oral bioavailability (mean plasma $AUC_{0\text{-last}}$of 21,606 ng*h/g vs. 10,065 ng*h/g) and high brain bioavailability (mean brain $AUC_{0\text{-last}}$ of 1985 ng*h/g vs. ND) at the 30 mg/kg dose. In these in vivo studies, ERAS-3490 was well tolerated, as body weights remained constant across all in vivo studies.

A. ERAS-3490 TGI in intracranial KRAS G12C NSCLC CDX NCI-H1373



B. ERAS-3490 TGI in subcutaneous KRAS G12C pancreatic cancer CDX MIA PaCa-2



(A) ERAS-3490 and a reference compound were dosed in an intracranially injected and luciferase labeled KRAS G12C mutant CDX model, NCI-H1373. All compounds were dosed at 100 mg/kg QD on days 1-9 and then at 30 mg/kg QD on days 10-42. ERAS-3490 significantly inhibited tumor growth relative to vehicle control (p-value < 0.01). (B) ERAS-3490 and a reference compound were dosed in a KRAS G12C inhibitor sensitive pancreatic cancer CDX, MIA PaCa-2, for 28 days. ERAS-3490 significantly inhibited tumor growth at both 30 mg/kg QD (p-value < 0.01) and 100 mg/kg QD (p-value < 0.001) relative to vehicle control. ERAS-3490 showed minimal body weight change at doses up to 100 mg/kg QD, demonstrating good tolerability.

We believe ERAS-3490 is the only KRAS G12C inhibitor specifically designed to cross the BBB. We nominated ERAS-3490 as our DevCan in June 2021 and expect to file an IND in the second half of 2022.

Development strategy for ERAS-3490

The initial development of ERAS-3490 as a monotherapy will be in KRAS G12C mutant NSCLC. We will evaluate the hypothesis that improved CNS penetration will enhance clinical activity, broaden the patient population, prolong response, delay disease progression, and extend survival. Our deep pipeline within the RAS/MAPK pathway will allow a number of combination therapies to be developed in NSCLC and other solid tumors, such as CRC and pancreatic cancer. One of the initial combinations to be assessed will be with ERAS-601, as preclinical and clinical data support the synergistic effect of inhibiting KRAS and SHP2. We intend to explore additional combinations of ERAS-3490 with other approved and investigational agents.

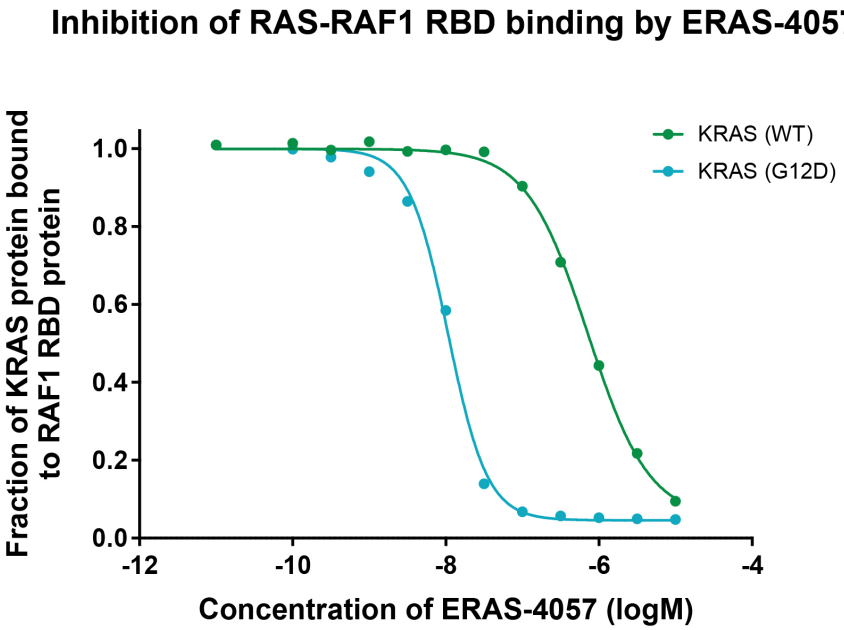
Our RAS-GTP franchise

Over 2 million patients annually worldwide are affected by RAS mutations other than KRAS G12C. Like KRAS G12C, these mutations hyperactivate RAS/MAPK pathway signaling by diminishing RAS's ability to transition from the active to the inactive state. Nearly 700,000 of these 2 million patients are affected by tumors that harbor KRAS G12D, which is the most prevalent KRAS mutation. This mutation results in hyperactive RAS/MAPK pathway signaling and is frequently observed in NSCLC, CRC, endometrial cancer, and pancreatic cancer. Targeting non-G12C RAS mutations (the focus of our RAS-GTP franchise, including ERAS-4 and ERAS-2/3) is more challenging than targeting KRAS G12C because: (1) KRAS G12D and other non-G12C RAS mutations are more commonly found in the active RAS-GTP state; (2) non-G12C mutations do not have a mutant-specific site for irreversible inhibitor binding; and (3) these mutations alter the conformation dynamics of RAS, hindering the ability of small molecules to target the same binding site as KRAS G12C inhibitors, S-IIP.

ERAS-4: our KRAS G12D program

Our ERAS-4 program endeavors to develop small molecules that potently and selectivity bind KRAS G12D. When bound to KRAS G12D, these inhibitors will prevent RAS-mediated signaling by locking KRAS G12D in the inactive GDP-bound state and/or obstructing KRAS G12D's ability to bind downstream effector proteins, such as BRAF and CRAF. We are accelerating advancement of this program by leveraging our in-house chemistry, biology, and structural biology expertise gained from working on our RAS-GDP and other RAS-GTP programs.

We have generated molecules with low nanomolar IC50 potency against KRAS G12D in the biochemical RAS-cRAF binding assay and high selectivity vs. KRAS wildtype (WT). As shown in the figure below, ERAS-4057 has strong potency of 10.8 nM, with 66-fold selectivity vs. KRAS WT. We are optimizing the properties of these molecules utilizing SBDD and structure-activity relationships while continuing to focus on generating other highly potent and selective compounds against KRAS G12D, with the intention to nominate and advance a DevCan into IND-enabling activities.

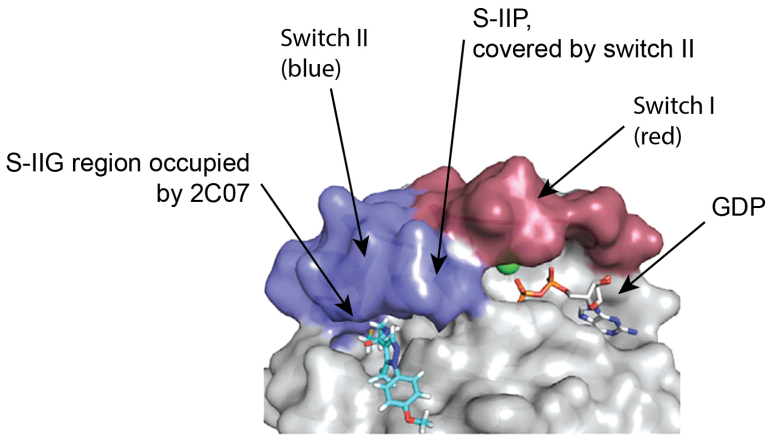


ERAS-4057 potently and selectively bound KRAS G12D with an IC50 of 10.8 nM (blue) and KRAS WT, an off-target protein, with an IC50 of 717.3 nM (green). Lower values on the y-axis indicate stronger inhibition of KRAS-RAF1 Ras binding domain (RBD) binding. Higher values on the x-axis indicate higher concentrations of ERAS-4057. In this assay, GDP-bound KRAS was converted to GTP-bound KRAS via an interaction with SOS1 and GTP-bound KRAS then bound the RAF1 RBD protein. A compound that inhibited the transition of KRAS from the GDP-bound to GTP-bound state and/or inhibited the protein-protein binding of KRAS and RAF1 resulted in a lower fraction of KRAS-RAF1 RBD binding.

ERAS-2/3: our other RAS-GTP programs

Our ERAS-2/3 program is focused on the development of small molecule inhibitors that target a novel region on RAS called the "switch II groove" (S-IIG). Unlike the S-IIP, the S-IIG is accessible in both the GDP-bound and GTP-bound states of RAS, making it a robust binding region across multiple RAS mutants.

Dr. Shokat identified a new binding site called S-IIG, as shown in the figure below. The original S-IIP that was the binding site for KRAS G12C inhibitors is present in the RAS-GDP state only. When RAS cycles to the RAS-GTP state, the S-IIP becomes obscured by switch II. Unlike the S-IIP, the S-IIG is not obscured by switch II, which enables small molecules to access the S-IIG independently of the phosphorylation state of the bound guanosine. Therefore, S-IIG is present in both the RAS-GTP and RAS-GDP states. Disruption of these switch regions can inhibit RAS signaling since GTP-bound RAS binds to effector proteins at these switch regions. We entered into an exclusive worldwide license agreement with UCSF for certain intellectual property derived from Dr. Shokat's work related to RAS-GTP, which guides our ERAS-2/3 programs.



The small molecule tool compound binds to the S-IIG region on GDP-bound KRAS M72C in this surface representation of RAS. The S-IIG is less obstructed by switch II, and this feature allows small molecules to bind to the S-IIG independently of the phosphorylation state of the bound guanosine. Unlike S-IIG, access to S-IIP is influenced by the phosphorylation state of the bound guanosine. Most selective KRAS G12C inhibitors in development bind to the S-IIP. Switch II is flexible in the GDP-bound state, allowing small molecule inhibitors to access the S-IIP. In the GTP-bound state, switch II rigidly folds over the S-IIP and occludes access to the S-IIP, thereby preventing most selective KRAS G12C inhibitors from accessing the S-IIP. Binding of GDP to RAS is coordinated by a magnesium ion, shown in green.

Our EGFR franchise

EGFR is a transmembrane protein and member of the ErbB family of receptor tyrosine kinases (RTKs) that under normal conditions bind various growth factors to activate cellular signaling to regulate homeostasis. However, when the receptor is overexpressed, amplified, and/or mutated, it becomes oncogenic, thereby contributing to cell survival, proliferation, and metastasis.

We are developing a differentiated portfolio of programs that target EGFR, including ERAS-801, our CNS-penetrant small molecule EGFR inhibitor, and ERAS-12, our EGFR domain II/domain III (D2/D3) targeting bispecific antibody.

ERAS-801: our CNS-penetrant EGFR inhibitor

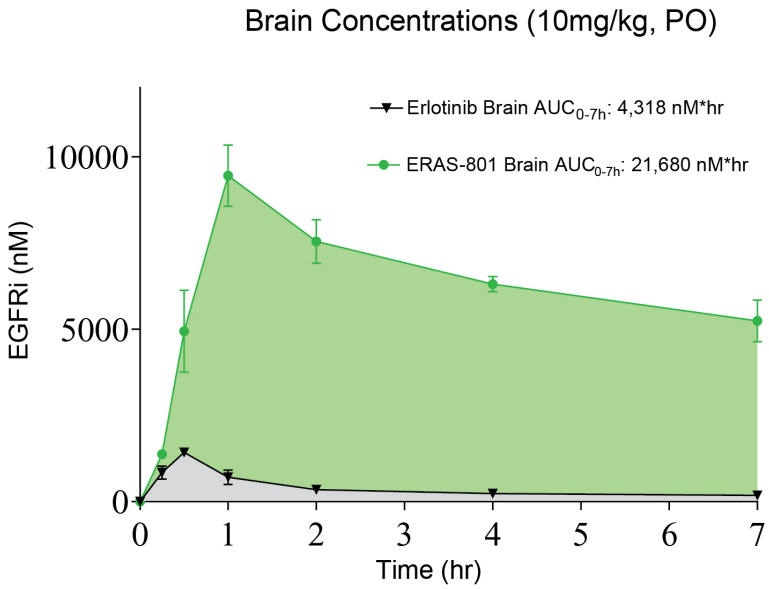
EGFR-mediated signaling plays a key role in the growth of many tumor types. Targeting of wildtype EGFR (wtEGFR) and mutant variants of EGFR (EGFRm) by small molecules and antibodies has resulted in improved patient outcomes in NSCLC, CRC, and HNSCC. However, the ability of these agents to effectively target wtEGFR and EGFRm in the CNS remains an unmet medical need. For example, in primary CNS tumors like GBM that have amplification of wtEGFR as well as expression of a mutation in the extracellular domain, the most common of which is epidermal growth factor receptor variant III (EGFRvIII), approved small molecule EGFR inhibitors have not demonstrated clinical activity.

The lack of clinical activity is likely multifactorial, but we believe there are two primary reasons why approved EGFR inhibitors are not effective: (1) the molecules do not penetrate the CNS well, and (2) the molecules are weak inhibitors of the EGFRvIII mutant protein as homodimers or heterodimers that include wildtype EGFR.

ERAS-801 is designed to be a potent, selective, reversible, and orally available small molecule with both: (1) highly enhanced CNS penetration (3.7:1 brain:plasma ratio in mice) and (2) the ability to target both EGFR alterations such as EGFRvIII, the most common mutant form of EGFR found in GBM, and wtEGFR, which heterodimerizes with EGFRvIII.

High CNS penetration of ERAS-801

As shown below, following administration of a single oral dose of 10 mg/kg in mice, ERAS-801 demonstrated substantially higher brain concentrations than erlotinib, an approved EGFR inhibitor:



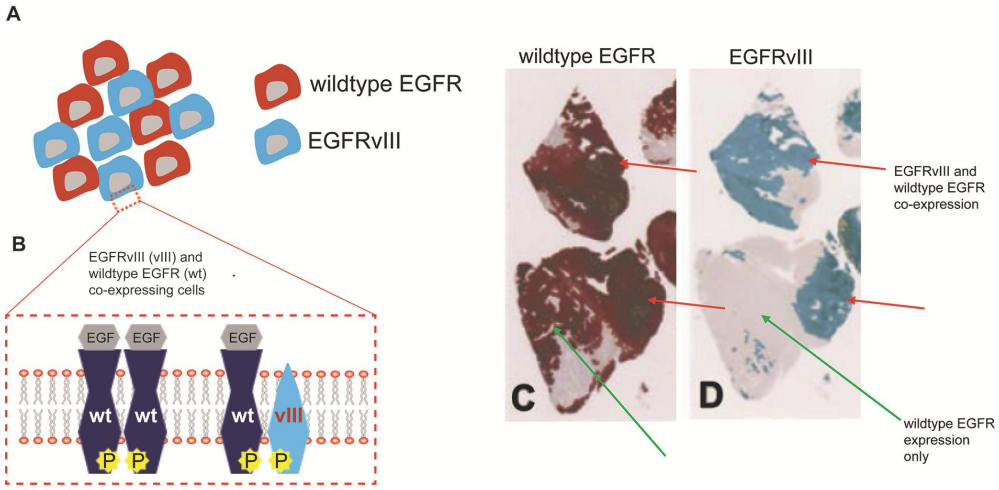
Brain concentrations and exposures of ERAS-801 and erlotinib in mice when administered a single 10 mg/kg dose. The x-axis represents time when brain concentration was assessed post-dose. The y-axis represents total concentration of compound in nanomolars.

Whereas approved EGFR inhibitors have suboptimal CNS penetration for primary brain tumors, as shown below, ERAS-801 showed substantially higher values of $K_p$and $K_{p,uu}$ (partition coefficients that measure bound and unbound drug concentration, respectively) compared to osimertinib, afatinib, erlotinib, gefitinib, and dacomitinib. The figure below is for illustrative purposes only and is not a head-to-head comparison. These data were generated from different studies, and caution should be exercised when comparing data across studies.

Compound (Brand Name)	Company	K_p, brain (mouse)	$K_{p,uu}$, brain (mouse)
ERAS-801	**Erasca**	**3.7**	**1.2**
Osimertinib (Tagrisso)	AstraZeneca	0.99	0.29
Afatinib (Gilotrif)	Boehringer Ingelheim	0.25	0.05
Erlotinib (Tarceva)	Genentech	0.06	0.13
Gefitinib (Iressa)	AstraZeneca	0.36	0.10
Dacomitinib (Vizimpro)	Pfizer	0.61	0.49

Dual targeting of EGFR alterations and wtEGFR in GBM to address heterodimerization

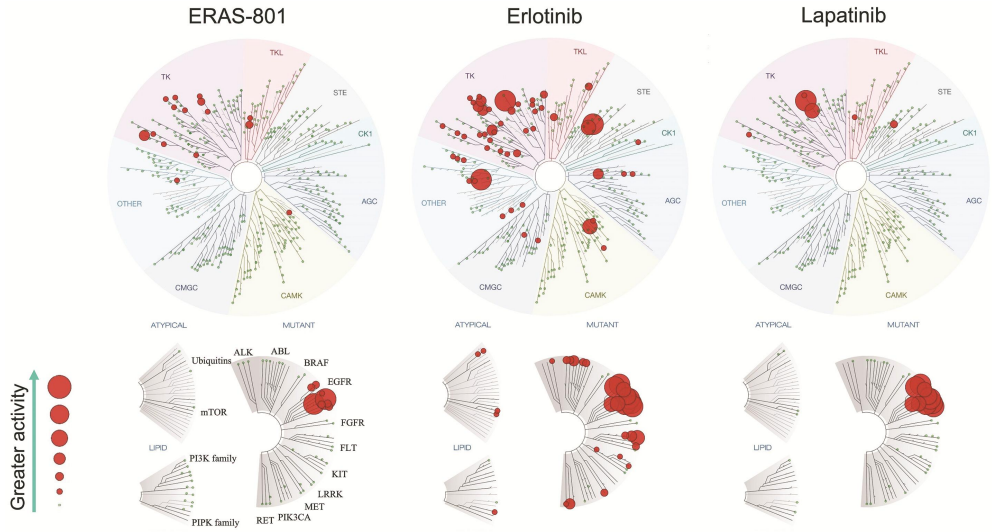
The most common mutant form of EGFR found in GBM is EGFRvIII. Given the promiscuous nature of EGFR signaling, ERAS-801 has been specifically designed to have activity against both EGFR alterations such as EGFRvIII and wildtype EGFR, as we believe that wtEGFR inhibition is critical to impairing the growth of EGFR altered GBM because of the propensity of wtEGFR to heterodimerize with EGFRvIII to drive oncogenic signaling, as seen below with substantial co-expression of EGFRvIII and wtEGFR.



Panel A showed that the EGFR splice variant mutant EGFRvIII may be expressed in a subset of GBM tumor cells and that it can be co-expressed with wildtype EGFR. Panel B showed a zoomed in diagram of a GBM tumor cell membrane that harbors both wildtype EGFR and EGFRvIII. Wildtype EGFR can homodimerize with another wildtype EGFR protein or heterodimerize with EGFRvIII, in each case potentially leading to oncogenic signaling. In panels C and D, an immunohistochemistry-stained section of GBM tumor tissue shows wildtype EGFR-expressing tumor cells in brown and EGFRvIII-expressing tumor cells in blue. Regions that are stained both brown and blue express both wildtype EGFR and EGFRvIII proteins while regions that are stained brown but not blue express wildtype EGFR only.

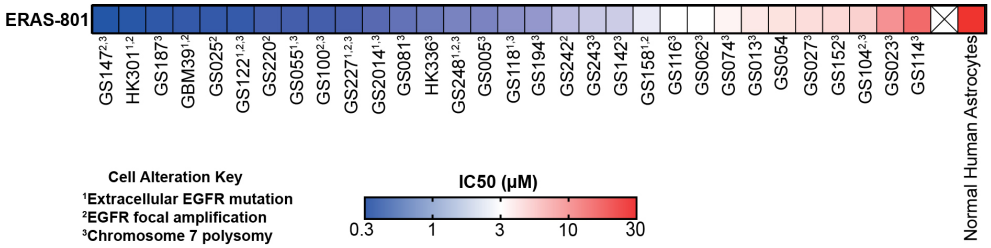
Preclinical profile of ERAS-801

In preclinical studies, ERAS-801 has demonstrated strong biochemical and cell-based potency, as well as strong biochemical selectivity. ERAS-801 has shown high potency against EGFR with a biochemical IC50 of 0.3 nM and high CNS penetration. It also showed high selectivity for EGFR based on a biochemical screen of 484 kinases in which ERAS-801 at 10 µM inhibited only two non-EGFR family kinases at greater than 90%.



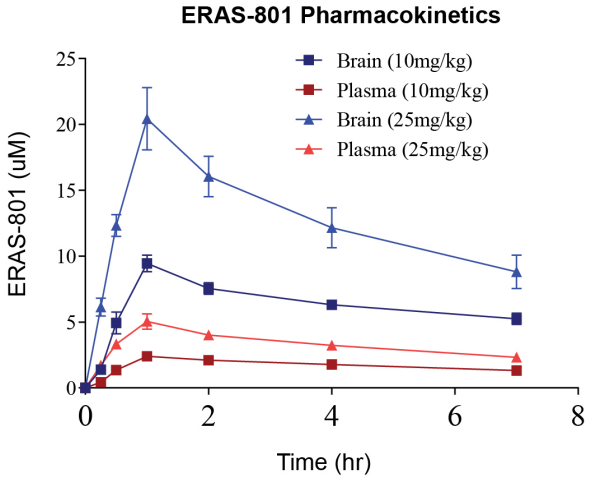
The biochemical activities of ERAS-801 and two approved compounds that are active against EGFR, erlotinib and lapatinib, were characterized at a single concentration (10 µM) in kinome screens. Inhibitory activity has been mapped onto a kinase phylogenetic tree where related kinases within 8 kinase groups are grouped by color (top row). Red circles indicate kinases where inhibitory activity has been observed; the diameter of the circle represents the strength of inhibition (i.e., large circles mean greater inhibitory activity). Activity against atypical and mutant kinases are shown in the bottom row.

In cell-based assays, ERAS-801 was potent against wildtype EGFR with an IC50 of 1.1 nM and EGFRvIII with an IC50 of 0.7 nM. In a 31 patient-derived glioma cell panel, ERAS-801 inhibited the growth of 65% of glioma cells with IC50 values less than 3 µM. This glioma cell panel included the most frequent types of EGFR alterations observed in GBM: amplification, EGFRvIII, extracellular domain mutations (e.g., A289V and A289D), and chromosome 7 polysomy. ERAS-801 showed no activity in normal human astrocytes (i.e., IC50 greater than 25 µM), which is the most common cell type in the human brain. ERAS-801's lack of activity against this normal brain cell type demonstrated that ERAS-801 selectively inhibited EGFR and that these normal brain cells were not dependent on EGFR signaling.



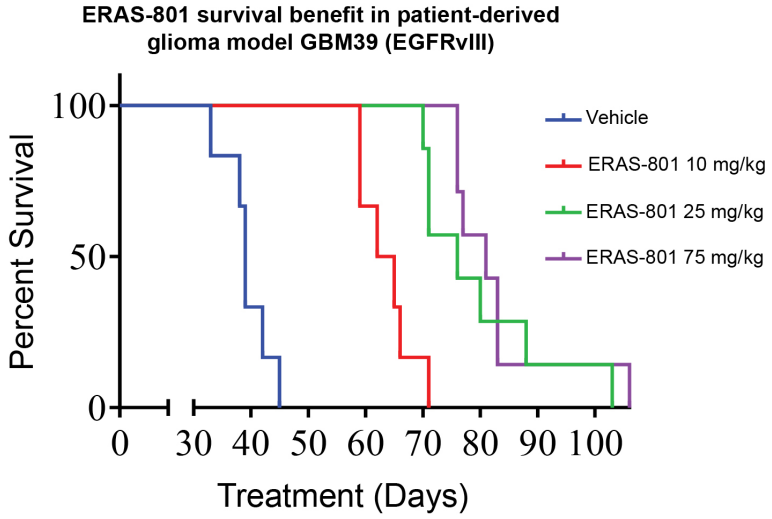
ERAS-801 showed broad activity in a panel of 31 patient-derived glioma cell lines. Demonstrating selectivity, ERAS-801 showed no activity in normal human astrocyte cells. Lower IC50 values, in blue, indicated stronger activity. The EGFR mutation status of the GBM patient-derived cells is indicated by symbols. Mutations include extracellular domain EGFR mutations and EGFR splice variants, such as EGFRvIII. Focal amplification indicates a high-level gain of the chromosomal region that includes the EGFR gene locus. Polysomy indicates cells that harbor more copies of chromosome 7, which contained the EGFR gene, than expected in a normal cell. Two copies of chromosome 7 are expected in normal cells.

In vivo studies showed that total ERAS-801 concentration was present in the brain by a factor of 3.7x relative to plasma, and its unbound concentration in the brain was 1.2x higher than in plasma. This high CNS penetration translated into enhanced in vivo survival benefit, which was observed in the EGFRvIII mutant patient-derived glioma model GBM39. In this study, ERAS-801 significantly extended the survival of mice at 10 mg/kg, 25 mg/kg, and 75 mg/kg doses relative to vehicle control (p-value < 0.05). Relative to vehicle control, significant survival benefit was observed in four additional patient-derived glioma models that harbor EGFRvIII, EGFR amplified, or chromosome 7 polysomy mutations (p-value < 0.001). ERAS-801 showed significant survival benefit and TGI in 93% of 14 patient-derived glioma models that harbored EGFR amplifications +/- EGFRvIII and extracellular domain EGFR mutations. These preclinical in vivo data highlight ERAS-801's potent CNS activity against EGFR mutant GBM, which comprises 40-60% of all GBM.

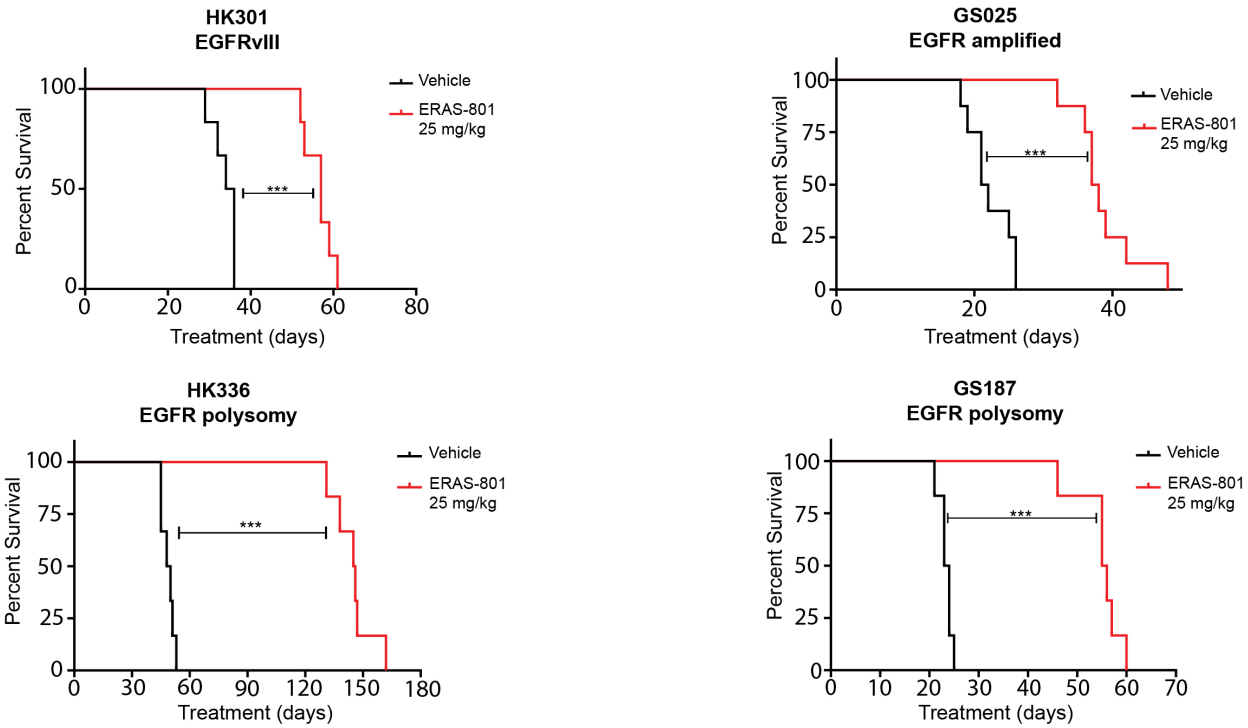


Dose (mg/kg)	Tissue	$AUC_{0\text{-}7hr}$ (μM*hr)	Brain / Plasma (total, %)
10	Brain	44.2	369%
	Plasma	12.0	
25	Brain	89.1	387%
	Plasma	23.0	

ERAS-801 plasma and brain concentrations in mice that have been administered a single dose of ERAS-801 at 10 mg/kg or 25 mg/kg. The table summarizes the PK profiles shown in the graph.



ERAS-801 showed dose-dependent survival benefit in the in vivo GBM PDX model GBM39, which harbored the EGFRvIII splice variant.



*ERAS-801 showed significant survival benefit in multiple glioma PDX models that harbored a variety of EGFR mutations. ***p-value < 0.001.*

Development strategy for ERAS-801

We believe that ERAS-801 could provide benefit to approximately 125,000 patients with newly diagnosed GBM worldwide per year. GBM is a difficult-to-treat, aggressive cancer that can occur in the brain or spinal cord. Current therapy consists primarily of surgical resection of the tumor, followed by radiation and chemotherapy. Once GBM recurs, therapeutic options for patients are limited. EGFR amplifications and mutations are detected in 40-60% of GBM cases and are generally indicative of poor prognosis. In the fourth quarter of 2021, our IND was cleared by FDA to proceed with a Phase 1 clinical trial of ERAS-801. In February 2022, we dosed the first patient in our THUNDERBBOLT-1 Phase 1 clinical trial in recurrent GBM that will evaluate the safety, PK, and PD effects of ERAS-801 as a single agent. Preliminary evaluation of anti-tumor activity will also be performed in patients who have tumors harboring alterations in EGFR.

ERAS-12: our EGFR D2/D3 bispecific antibody program

Inhibition of wildtype EGFR signaling mediated by overexpression of EGFR has shown promise in treating various tumors, including HNSCC and CRC. In tumors where overexpression of EGFR is thought to be the primary driver of EGFR signaling, an antibody-based approach is the most effective way to target the receptor, and approved antibodies have demonstrated good tolerability as well as activity by inhibiting EGFR activation and mediating antibody-dependent cellular cytotoxicity (ADCC), a process by which the antibody alerts the immune system to attack the bound tumor cell. However, all approved anti-EGFR antibodies target domain III (D3) only, which is the inactive conformation of wildtype EGFR, and no approved antibodies target domain II (D2), which is the active, ligand binding, conformation of wildtype EGFR. Antibodies targeting D2 are expected to be more effective when epidermal growth factor (EGF) or other members of the EGF family are overexpressed.

We are developing a bispecific antibody that is active against both the inactive and active conformations of wildtype EGFR, and we anticipate filing an IND for this program by 2024.

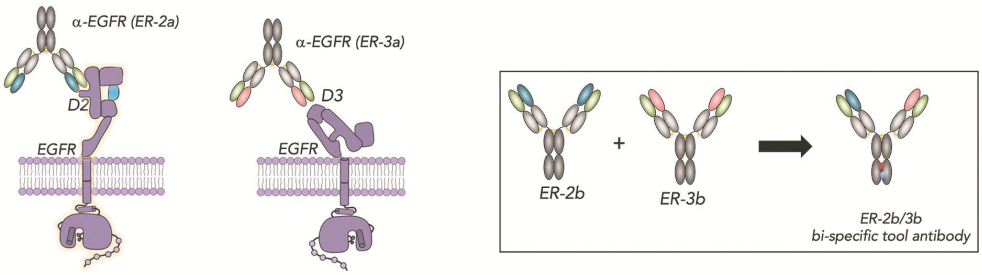
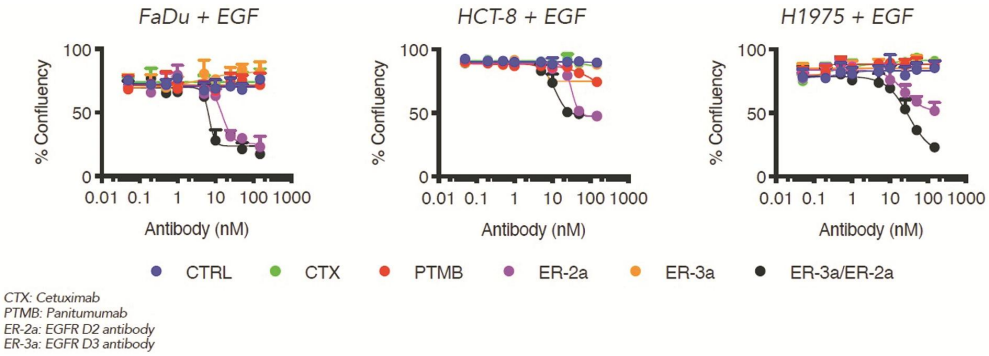


Diagram (A) visualizes the EGFR antibody ER-2a binding to the extracellular domain II of EGFR wildtype (purple), which is accessible when EGFR is in the active state. EGFR assumes an active state conformation when its ligand is bound (the bound ligand is shown in blue). Diagram (B) visualizes the EGFR antibody ER-3a binding to the extracellular domain III of EGFR wildtype (purple), which is accessible when EGFR is in the inactive state. In the rectangle, the portion of ER-2b that recognizes domain II of EGFR and the portion of ER-3b that recognizes domain III of EGFR are combined into a bispecific antibody that binds EGFR in both states.

By binding to EGFR in the active D2 state, our D2/D3 bispecific antibody can likely better prevent EGFR dimerization and can potentially achieve higher levels of EGFR inhibition than currently approved EGFR antibodies. Achieving a higher level of EGFR inhibition may better control tumor growth and delay the emergence of resistance mechanisms involving EGFR that spends more time in the active conformation.

Targeting D2 via the ER-3a/2a and ER-2a antibodies show a concentration-dependent inhibition of cancer cell proliferation.



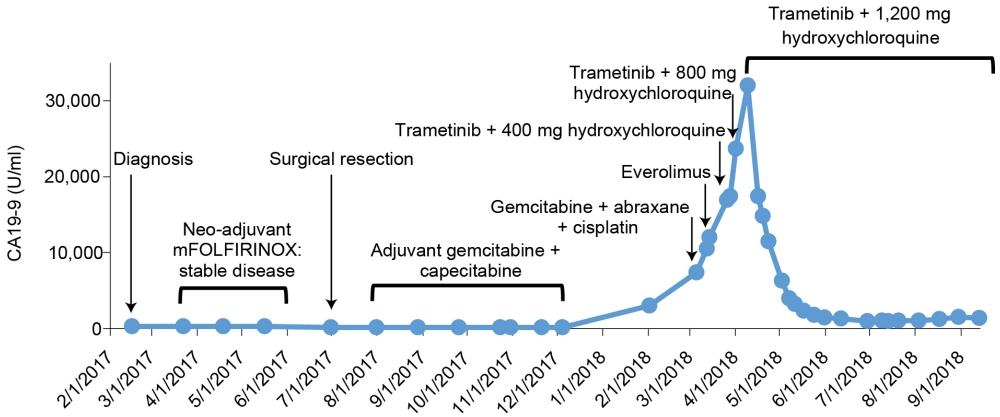
The bispecific antibody ER-3a/ER-2a and EGFR active state-binding antibody ER-2a inhibited cell growth in FaDu, an HNSCC cell line, and HCT-8, a CRC cell line, and the NSCLC cell line H1975. FaDu and HCT-8 expressed wildtype EGFR and H1975 expressed EGFR with two kinase domain mutations, L858R and T790M. EGFR's ligand, EGF, was added to these cells to further stimulate EGFR activity and model environments where EGF is expressed. As expected, only the two antibodies that recognized the active state of EGFR, ER-3a/ER-2a, inhibited the proliferation of all three cell lines, as indicated by a reduced confluency percentage.

ERAS-5: our ULK program

The ULK1 and ULK2 kinases are key regulators of the metabolic process known as autophagy. Under physiological conditions, cells utilize autophagy to recycle cellular components, breaking down older components that may be malfunctioning due to age and stress into subunits that are combined to form new components. This process can act as a survival mechanism during stress, such as nutrient starvation, by enabling cells to break down non-critical cellular components to support critical functions. Autophagy can be upregulated in tumor cells where RAS/MAPK pathway signaling is inhibited, acting as an escape route mechanism by preventing tumor cell death.

To pursue our therapeutic strategy of targeting escape routes, our ERAS-5 program is focused on developing potent, selective inhibitors of ULK1/2 so that we can further boost tumor cell death in combination with our RAS/MAPK pathway inhibitors. We have identified a promising ERAS-5 compound that showed strong potency, target engagement, inhibition of autophagy, and selectivity. In a biochemical assay, it exhibited IC50s of 2.4 nM and 2.6 nM against ULK1 and ULK2, respectively. In cell-based assays, this compound showed an IC50 of 13.4 nM in an ULK1 target engagement assay and an IC50 of 5.9 nM in an autophagy pathway activity assay that visualized GFP-labeled LC3 puncta (LC3 proteins localize on autophagosomes and, when labeled with a fluorophore, can enable quantification of autophagosomes by microscopy; higher numbers of autophagosomes in the cell, which are generated during the autophagy process, indicate higher levels of autophagy). Our promising ERAS-5 compound also showed biochemical selectivity—greater than 375x selectivity against TBK1 and greater than 240x selectivity against AMPK, two off-target kinases that are commonly inhibited by other ULK inhibitors with published structures.

We believe that agents targeting the RAS/MAPK pathway could benefit from combination with an ULK1/2 inhibitor, addressing up to 2.6 million patients with cancer annually worldwide. This includes over 400,000 patients with RAS mutant pancreatic cancer since pancreatic cancer tumors have upregulated RAS/MAPK pathway signaling and autophagy may already be upregulated due to these tumors growing in nutrient poor environments. As shown below, a promising clinical case report showed that combining a non-specific autophagy inhibitor, hydroxychloroquine, with a RAS/MAPK pathway inhibitor, trametinib, meaningfully reduced tumor burden in a patient with metastatic pancreatic cancer. The patient's level of CA19-9, a blood-based marker of overall tumor burden, rapidly decreased upon initiation of this combination therapy and remained low through 5 months of treatment. This patient had previously progressed on multiple chemotherapy regimens and an mTOR inhibitor, everolimus.



In a patient with metastatic pancreatic cancer, the combination of an autophagy inhibitor, hydroxychloroquine, with a RAS/MAPK pathway inhibitor, trametinib, resulted in a steep reduction of overall tumor burden as represented by a decrease in CA19-9. Higher tumor burden levels are shown as higher concentrations of CA19-9. The x-axis represents dates within the patient's treatment journey and the y-axis is the detected concentration of CA19-9. Prior to initiation of trametinib and hydroxychloroquine treatment, the patient was treated with chemotherapy regimens mFOLFIRINOX (folinic acid [leucovorin], fluorouracil, irinotecan, and oxaliplatin), gemcitabine, and capecitabine, and gemcitabine, abraxane, and cisplatin. After progressing on the gemcitabine, abraxane, and cisplatin triplet, the patient was treated with an mTOR inhibitor, everolimus. The patient progressed on everolimus and was then treated with trametinib at 2 mg QD in combination with escalating doses of hydroxychloroquine up to 1,200 mg QD. The combination of trametinib at 2 mg QD with hydroxychloroquine at 1,200 mg resulted in a significant decrease in overall tumor burden that continued through 5 months of treatment.

ERAS-9: our SOS1 program

SOS1 is a protein that binds to RAS and enables it to transition from the inactive RAS-GDP state to the active RAS-GTP state. RAS proteins bind GDP tightly, and a cofactor, such as a SOS1, is required to facilitate RAS's release of GDP followed by its binding to GTP. Without this cofactor, RAS will accumulate in the inactive state as active state RAS hydrolyzes bound GTP. We are developing small molecule inhibitors in our ERAS-9 program that obstruct SOS1-RAS binding and thereby prevent RAS from cycling to the active RAS-GTP state. SOS1-RAS inhibition can prevent RAS activation mediated by upstream signaling (e.g., via EGFR activation) and can be combined with downstream RAS/MAPK pathway inhibitors to potentially address RAS and RAF mutations that result in constitutive RAS/MAPK pathway signaling. SOS1-RAS inhibitors can address as many as 4.9 million patients with cancer who harbor RAS/MAPK pathway activating mutations annually worldwide either as a monotherapy or in combination therapies.

ERAS-10: our protein degrader program

We are exploring protein degradation as an alternative mechanism to complement our approach of enzymatically inhibiting oncogenic proteins. Degrader molecules bind to a target oncogenic protein and cellular machinery that label proteins for degradation. Within proximity of each other, the degrader machinery labels the target protein through a process called ubiquitination, and the labeled protein is degraded. Degraders can offer advantages over enzymatic inhibitors, such as the ability of a single degrader molecule to tag many copies of the target oncoprotein for degradation and the ability of a degrader to more effectively inhibit the function of non-enzymatic proteins. We think this approach will allow us to target a broader range of proteins within the RAS/MAPK pathway and may help us more effectively target a subset of oncogenic proteins than via enzymatic inhibition alone.

ERAS-11: our MYC program

MYC is a transcription factor that is mutated in 40% of cancers, affecting approximately 7.7 million patients with cancer annually worldwide. These mutations promote cancer by hyperactivating MYC and/or its protein dimerization partners (e.g., MAX). Inhibiting MYC by disrupting its ability to dimerize with other proteins or bind DNA has been pursued for over 20 years but has not yet been successful. We are exploring novel approaches to targeting MYC utilizing our internal discovery expertise complemented with partnerships to overcome the challenges that have prevented the successful development of MYC protein inhibitors.

Our acquisition and license agreements

Asana BioSciences

In November 2020, we entered into an agreement and plan of merger with Asana and ASN Product Development, Inc. (ASN) (the Asana Merger Agreement), pursuant to which ASN became our wholly-owned subsidiary. Asana and ASN had previously entered into a license agreement, which was amended and restated prior to the closing of the merger transaction (the Asana License Agreement, and collectively with the Asana Merger Agreement, the Asana Agreements), pursuant to which ASN acquired an exclusive, worldwide license to certain intellectual property rights relating to inhibitors of ERK1 and ERK2 owned or controlled by Asana to develop and commercialize ERAS-007 and certain other related compounds for all applications. We have the right to sublicense (through multiple tiers) the licensed rights under the Asana Agreements, subject to certain conditions. The foregoing license is subject to Asana's non-exclusive right to practice the licensed rights to research and conduct preclinical pharmacology activities with a specified combination of compounds, subject to certain specified conditions. Pursuant to the Asana License Agreement, neither Asana nor ASN can directly or indirectly exploit certain classes of competing products, subject to specified exceptions. In addition, we are required to use commercially reasonable efforts to develop and obtain regulatory approval for ERAS-007 in the United States, at least one major market country in Europe, and either China or Japan.

Under the Asana Merger Agreement, we made an upfront payment of $20 million and issued 4,000,000 shares of our Series B-2 convertible preferred stock to Asana. In connection with our IPO, these shares of Series B-2 convertible preferred stock were converted into 3,333,333 shares of our common stock. We are obligated to make future development and regulatory milestone cash payments for a licensed product in an amount of up to $90 million. Additionally, upon achieving a development milestone related to demonstration of successful proof-of-concept in a specified clinical trial, we will be required to issue 3,888,889 shares of our common stock to Asana. We are not obligated to pay royalties on the net sales of licensed products.

Upon our payment to Asana of all merger consideration, including upfront cash and equity payments, the milestone payments, the equity payment related to the proof-of-concept development milestone, and all other development milestone payments, with the exception of a specific milestone that does not need to be achieved at such time and will remain subject to payment in the event that such milestone occurs at a later time, all licensed rights will become fully paid-up, perpetual, and irrevocable. The License Agreement may be terminated by either Asana or us in the event of an uncured material breach by the other party. Asana also has the right to terminate the Asana License Agreement if we fail to engage in material activities in support of clinical development and commercialization of ERAS-007 for a period of 12 consecutive months, excluding reasons outside of our reasonable control and subject to certain limitations. However, Asana's right to terminate the Asana License Agreement for any reason ends once we have paid to Asana all merger consideration, or if Asana's equity interest in us is publicly traded and exceeds a certain threshold value. We may terminate the Asana License Agreement at any time upon the provision of prior written notice to Asana.

NiKang Therapeutics

In February 2020, we entered into a license agreement (the NiKang Agreement) with NiKang Therapeutics, Inc. (NiKang) under which we were granted an exclusive, worldwide license to certain intellectual property rights owned or controlled by NiKang related to certain SHP2 inhibitors to develop and commercialize ERAS-601 and certain other related compounds for all applications. We have the right to sublicense (through multiple tiers) our rights under the NiKang Agreement, subject to certain conditions, and are required to use commercially reasonable efforts to develop and commercialize licensed products. The parties are obligated to negotiate in good faith for a certain period of time to grant NiKang the exclusive commercial distribution rights in greater China once a licensed product reaches a certain development stage.

Under the NiKang Agreement, we made an upfront payment of $5 million to NiKang and reimbursed NiKang $0.4 million for certain initial manufacturing costs. In addition, we paid an additional $7 million after publication of a US patent application that covered the composition of matter of ERAS-601. We are also obligated to pay (i) development and regulatory milestone payments in an aggregate amount of up to $16 million for the first licensed product and $12 million for a second licensed product, and (ii) commercial milestone payments in an aggregate amount of up to $157 million for the first licensed product and $151 million for a second licensed product. We are also obligated to: (i) pay tiered royalties on net sales of all licensed products in the mid-single digit percentages, subject to certain reductions; and (ii) equally split net sublicensing revenues earned under sublicense agreements that we enter into with any third party before commencement of the first Phase I clinical trial for a licensed product.

The NiKang Agreement will expire upon the last to expire royalty term, which is determined on a licensed product-by-licensed product and country-by-country basis, and is the later of: (i) ten years from the date of first commercial sale, (ii) the last to expire valid claim within the licensed patent rights covering such licensed product, or (iii) the expiration of all regulatory exclusivity for the licensed product in such country. Upon expiration of the NiKang Agreement, on a licensed product-by-licensed product and country-by-country basis, we will have a fully paid-up, non-exclusive license to conduct research and to develop and commercialize the licensed products.

The NiKang Agreement may be terminated in its entirety by NiKang in the event of our uncured material breach, which includes our failure to use commercially reasonable efforts to satisfy certain specified clinical development diligence milestones. In addition, NiKang may terminate if we, directly or indirectly, commence a legal action challenging the validity or enforceability of any licensed patents. Further, if we acquire more than 50% of the equity or assets of a company that owns a competing small molecule that is designed to prevent the same target as set forth in the NiKang Agreement from switching to an enzymatically active state, then we must either divest such competing product or terminate the NiKang Agreement. We may terminate the NiKang Agreement at any time upon the provision of prior written notice to NiKang. Upon termination of the NiKang Agreement for any reason, all rights and licenses granted to us, as well as any sublicenses that we granted thereunder, will terminate. In addition, upon any termination (but not expiration) of the NiKang Agreement and upon NiKang's request, the parties are obligated to meet and negotiate in good faith the terms of a license from us to NiKang to allow NiKang's continued development, manufacture, and commercialization of the licensed products.

Katmai Pharmaceuticals

In March 2020, we entered into a license agreement (the Katmai Agreement) with Katmai Pharmaceuticals, Inc. (Katmai) under which we were granted an exclusive, worldwide, royalty-bearing license to certain patent rights and know-how controlled by Katmai related to the development of small molecule therapeutic and diagnostic products that modulate EGFR and enable the identification, diagnosis, selection, treatment, and/or monitoring of patients for neuro-oncological applications to develop, manufacture, use, and commercialize ERAS-801 and certain other related compounds in all fields of use. We have the right to sublicense (through multiple tiers) our rights under the Katmai Agreement, subject to certain limitations and conditions, and are required to use commercially reasonable efforts to develop, manufacture, and commercialize licensed products and to meet certain specified development and launch milestones by certain dates. We are obligated to use commercially reasonable efforts to develop the licensed products first for use within the neuro-oncology field before expanding our development efforts to include other indications in the oncology field. Following the first achievement of a clinical proof-of-concept for any indication, we have the right to submit a non-binding offer to Katmai for: (i) the purchase of all licensed patent rights, know-how, and other assets owned by Katmai that are necessary or useful for the exploitation of the licensed products, or (ii) for the purchase of Katmai. Pursuant to the Katmai Agreement, neither Katmai nor we can directly or indirectly exploit certain specified classes of competing products.

The license granted under the Katmai Agreement is subject to The Regents of the University of California's reserved right to: (i) use the licensed patent rights and know-how for educational and non-commercial research purposes, and to publish results arising therefrom, and (ii) grant licenses to the licensed know-how to third parties without notice because the licensed know-how is non-exclusively licensed to Katmai by The Regents of the University of California. Further, the license granted under the Katmai Agreement is subject to the rights of the United States government under the Bayh-Dole Act, including: (i) a non-exclusive, non-transferable, irrevocable, paid-up license to practice or have practiced the invention claimed by the licensed patent rights throughout the world, and (ii) the obligation that any licensed products used or sold in the United States be manufactured substantially in the United States.

Under the Katmai Agreement, we made an upfront payment of $5.7 million and Katmai agreed to purchase shares of our Series B-1 convertible preferred stock and Series B-2 convertible preferred stock having an aggregate value of $2.7 million. In connection with our IPO, these shares of Series B-1 convertible preferred stock and Series B-2 convertible preferred stock were converted into 395,555 shares of our common stock, in the aggregate. We are obligated to make future development and regulatory milestone payments of up to $26 million and commercial milestone payments of up to $101 million. We are also obligated to pay tiered royalties on net sales of each licensed product, at rates ranging from the mid- to high-single digit percentages, subject to a minimum annual royalty payment in the low six figures and certain permitted deductions.

Our royalty obligations and the Katmai Agreement will expire, on a licensed product-by-licensed product and country-by-country basis, on the earlier of: (i) the ten-year anniversary of the expiration of all valid claims included in the licensed patents covering the composition of matter or method of use of such licensed product in such country, or (ii) the twentieth anniversary of the first commercial sale of such licensed product in such country. Upon the expiration of the Katmai Agreement, we will have a fully paid-up and irrevocable license.

The Katmai Agreement may be terminated in its entirety by either party: (i) in the event of an uncured material breach by the other party, or (ii) in the event the other party becomes subject to specified bankruptcy, insolvency, or similar circumstances. Provided that we are in full compliance with the Katmai Agreement, we may terminate the Katmai Agreement upon written notice to Katmai. Upon termination of the Katmai Agreement for any reason, all rights and licenses granted to us thereunder will terminate. Upon termination of the Katmai Agreement, we are obligated, among other things, to: (i) grant an exclusive license to Katmai under all of our right, title and interest in all inventions and know-how developed under the Katmai Agreement existing at the time of termination that are specific to the licensed compounds or products, including without limitation all data and results related to their exploitation, and (ii) transfer to Katmai ownership and possession of all regulatory filings related to the licensed compounds and products. Unless the Katmai Agreement is terminated for our material breach, the parties will negotiate in good faith the financial terms pursuant to which the foregoing actions will be conducted, provided that our performance of such actions may not be conditioned upon the conduct or completion of such negotiations. If the parties are unable to agree upon such terms within the specified time period, then the parties will submit all unresolved matters for resolution by arbitration.

Emerge Life Sciences

In March 2021, we entered into an asset purchase agreement (the ELS Purchase Agreement) with ELS wherein we purchased all rights, title, and interest (including all patent and other intellectual property rights) to ELS's EGFR antibodies directed against the EGFR domain II (EGFR-D2) and domain III (EGFR-D3) as well as a bispecific antibody where one arm is directed against EGFR-D2 and the other is directed against EGFR-D3 (the Antibodies). Under the ELS Purchase Agreement, we issued to ELS 500,000 shares of our common stock and made an upfront payment of $2 million. We are not obligated to pay royalties on the net sales of products covered by the acquired intellectual property. Under the ELS Purchase Agreement, ELS is committed to performing certain studies on the Antibodies to assist in development activities, the costs of which shall be mutually agreed upon and for which we will be responsible.

Pursuant to the ELS Purchase Agreement, at any time between 12 months and 36 months after the effective date of the ELS Purchase Agreement, if we reasonably determine that none of the Antibodies should be taken into human clinical trials due to safety, efficacy or CMC issues, then we have the option to select another antibody developed and solely owned by ELS that is not the subject of a license, collaboration, or option to a third party (the Option). If we elect to exercise the Option, then ELS will provide us with a list of all available antibodies that meet the aforementioned requirements, and we have the right to select one antibody from the list. Upon our selection of an antibody, ELS will assign us all rights, title and interest to such antibody (including patent and other intellectual property rights) subject to any pre-existing obligations or restrictions. In the event that we wish to have ELS conduct any studies on such optioned antibody, then after mutual agreement as to the scope of the studies, we will be responsible for the cost for such studies.

LifeArc

In April 2020, we entered into a license agreement with LifeArc (the LifeArc Agreement) under which we were granted an exclusive, worldwide license to certain materials, know-how, and intellectual property rights owned or controlled by LifeArc to develop, manufacture, use, and commercialize certain ULK inhibitors for all applications. We also have the right to sublicense (through multiple tiers) our rights under the LifeArc Agreement, subject to certain conditions. The foregoing license is subject to LifeArc's retained non-exclusive, irrevocable, worldwide, sublicensable (to its academic collaborators), royalty-free right to use the licensed intellectual property rights within all fields of use for LifeArc's own non-commercial, non-clinical academic research. Notwithstanding its retained rights, LifeArc will not seek to develop or undertake any other ULK1/2 therapeutic development programs either in-house or via third parties until April 2025. We are required to use diligent efforts to achieve certain development and regulatory milestones with respect to submission of an IND, initiation of clinical trials, submission of a new drug application (NDA), and commencement of commercial sales.

Under the LifeArc Agreement, we were granted the license at no upfront cost and a period of three months after the effective date to conduct experiments on LifeArc's compounds. Upon completion of this initial testing period, we had the option to continue the license and make a one-time license payment of $75,000 to LifeArc, which payment was subsequently made. We are obligated to make future development milestone payments for a licensed product of up to $11 million and sales milestone payments of up to $50 million. We are also obligated to pay royalties on net sales of all licensed products, in the low-single digit percentages, subject to certain reductions.

Our royalty obligations and the LifeArc Agreement will expire, on a licensed product-by-licensed product and country-by-country basis, on the later of: (i) ten years from the date of first commercial sale, and (ii) when there is no longer a valid patent claim covering such licensed product, or expiration of regulatory exclusivity for the licensed product in such country. Upon expiration of the LifeArc Agreement, all rights and licenses granted to us and under the LifeArc Agreement will continue on a fully paid-up basis.

The LifeArc Agreement may be terminated in its entirety by either LifeArc or us in: (i) the event of an uncured material breach by the other party, or (ii) in the event the other party becomes subject to an order by a court of competent jurisdiction for winding-up or dissolution or similar circumstances. Further, LifeArc may terminate the LifeArc Agreement by giving written notice to us if: (i) we fail to comply with our diligence obligations and fail to take remedial actions, (ii) we fail to agree on a mechanism to cure a persistent breach, or (iii) we fail to provide proof of the insurance coverage as required under the LifeArc Agreement. We may terminate the agreement at any time upon the provision of written notice to LifeArc.

Upon termination of the LifeArc Agreement for any reason, all rights and licenses granted to us, as well as any sublicenses we granted thereunder, will terminate. In addition, upon termination of the LifeArc Agreement for any reason other than its natural expiration or termination by us for LifeArc's material breach, LifeArc has an option to negotiate an exclusive, worldwide, sublicensable license to commercialize any patent rights, technical and clinical data, and any development results relating to the licensed products that are owned or controlled by us for the purpose of developing, manufacturing and commercializing the licensed products on terms to be negotiated between the parties.

University of California, San Francisco

In December 2018, we entered into a license agreement, as amended (the UCSF Agreement), with The Regents of the University of California, San Francisco (the Regents), under which we were granted an exclusive, worldwide, royalty-bearing license under certain patent rights claiming novel covalent inhibitors of GTP- and GDP-bound RAS for the development and commercialization of products covered by such patent rights for the prevention, treatment and amelioration of human cancers and other diseases and conditions. We have the right to sublicense (through multiple tiers) our rights under the UCSF Agreement, subject to certain conditions. The UCSF Agreement was amended in May 2021. The foregoing license is subject to various retained rights and restrictions, including: (i) the Regents' reserved right to make, use and practice the licensed patent rights and any technology relating thereto for educational and research purposes, (ii) Howard Hughes Medical Institute's non-exclusive, fully paid-up, irrevocable worldwide license to use the licensed patent rights for research purposes, (iii) Howard Hughes Medical Institute's statement of policy on research tools, and (iv) the obligations to the US government under the Bayh-Dole Act, including the obligation to report on the utilization of the invention covered by the licensed patent rights and a non-exclusive, non-transferable, irrevocable, paid-up license to practice or have practiced such invention throughout the world. We are required to use diligent efforts to proceed with the development and commercialization of licensed products including by achieving certain milestone events within the specified time periods.

Under the UCSF Agreement, we made upfront payments of $50,000 to the Regents and pay the Regents an annual license maintenance fee, but such fee will not be due on any anniversary if, on that date, we are making royalty payments to the Regents. We are obligated to make future development and regulatory milestone payments of up to $6.4 million and a sales milestone payment of $2 million for either of the first two licensed products. We are also obligated to pay royalties on net sales of all licensed products in the low-single digit percentages, subject to a minimum annual royalty payment in the low six figures, commencing on the year of the first sale of a licensed product and continuing, on a licensed product-by-licensed product and country-by-country basis, until there are no valid claims of the licensed patent rights covering the licensed product in such country. Additionally, we are obligated to pay tiered sublicensing fees, with the first two tiers in the low-to-mid teen percentages and the third tier at 30%, on certain fees we receive from any sublicense that we grant, depending on the stage of development of a licensed product when such sublicense is granted. Prior to the execution of the amendment, we were obligated to make a cash payment to the Regents in the event of our initial public offering, a change of control transaction or a reverse merger (the Corporate Milestone). In the amendment, the amount of the cash payment payable upon our achievement of a Corporate Milestone was reduced and we agreed to issue the Regents 944,945 shares of our common stock, which issuance is not contingent upon the achievement of a Corporate Milestone and occurred in May 2021. In August 2021, following the achievement of the Corporate Milestone, we made a cash payment to the Regents in the amount of $1.7 million.

The UCSF Agreement will expire upon the expiration of the last of the licensed patent rights. The UCSF Agreement may be terminated in its entirety by the Regents: (i) for our uncured breach, (ii) for our bankruptcy, or (iii) if we challenge, directly or indirectly, the validity or enforceability of any licensed patents. Further, if we fail to satisfy any diligence milestones, the Regents has the right and option to either terminate the UCSF Agreement or modify the exclusive license granted thereunder to a non-exclusive license. We may terminate the UCSF Agreement in its entirety or on a country-by-country basis at any time upon the provision of written notice to the Regents. Upon termination of the UCSF Agreement for any reason, all rights and licenses granted to us thereunder will terminate.

Commercialization

We intend to maintain exclusive worldwide development and commercialization rights to our product candidates (excluding programs in our pipeline that arise from an investment made by Erasca Ventures in a third party) and, if marketing approval is obtained, to commence commercialization activities by building a focused sales and marketing organization to sell our products on our own in the United States and potentially other regions such as Europe. We will likely seek commercialization partnerships for our product candidates in other regions beyond the United States and Europe. We currently have no sales, marketing, or commercial product distribution capabilities. We intend to build the necessary infrastructure and capabilities over time for commercialization in the United States and potentially other regions, following further advancement of our product candidates. Clinical data, the size of the addressable patient population, the size of the commercial infrastructure and manufacturing needs, and the status of our pipeline, may all influence or alter our commercialization plans.

Competition + Cooperation (“Coopetition”)

Although the biotechnology and pharmaceutical industries, and the oncology sector, are characterized by rapid evolution of technologies, fierce competition, and strong defense of intellectual property rights, we believe the most fearsome competitor of all is cancer itself. As such, we view other companies in this sector more as potential allies and collaborators than as competitors, as we all have a common cause: to defeat cancer. Many of the companies that are developing or marketing treatments for cancer, including major pharmaceutical and biotechnology companies that are working on therapies targeting the RAS/MAPK pathway, are companies with whom we endeavor to collaborate in our mission to erase cancer.

Collaborating with these companies alleviates some of the traditional challenges that emerging companies face with respect to financial resources, established presence in the market, expertise in research and development, manufacturing, preclinical and clinical testing, obtaining regulatory approvals and reimbursement, and marketing approved products. Similarly, recruiting and retaining qualified scientific and management personnel, establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, programs are challenges for all companies developing or marketing treatments for cancer.

That said, our commercial potential could be reduced or eliminated if other companies develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than products that we may develop. Other companies also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in these companies establishing a strong market position before we are able to enter the market or make our development more complicated.

There are numerous companies developing or marketing treatments for cancer, including many major pharmaceutical and biotechnology companies. These treatments consist of small molecule drug products, biologics, cell-based therapies, and traditional chemotherapy. There are also a number of pharmaceutical companies with product candidates in development that target the nodes involving the RAS/MAPK pathway. These include, among others, Amgen, AstraZeneca, Black Diamond Therapeutics, BioMed Valley Discoveries, Boehringer Ingelheim, Deciphera Pharmaceuticals, Eli Lilly, Jacobio Pharmaceuticals (in collaboration with AbbVie), Janssen, Merck, Mirati Therapeutics, Navire Pharma (a subsidiary of BridgeBio), Novartis, Pfizer, Relay Therapeutics (in collaboration with Genentech), Revolution Medicines, Roche/Genentech, Sanofi, and Schrödinger (in collaboration with Bristol Myers Squibb).

Intellectual property

We strive to protect the proprietary technology, inventions, and improvements that are commercially or strategically important to our business, including seeking, maintaining, and defending patent rights, whether developed internally or in-licensed/acquired from third parties. We also rely on trade secrets and know-how relating to our proprietary technology and product candidates and continuing innovation to develop, strengthen and maintain our proprietary position. We also plan to rely on data exclusivity, market exclusivity and patent term adjustments or extensions when available. Our commercial success will depend in part on our ability to obtain and maintain patent and other intellectual property protection for our proprietary technology, inventions and improvements; to preserve the confidentiality of our trade secrets; to defend and enforce our proprietary rights, including any patents or trademarks that we may own in the future; and to operate without infringing on the valid and enforceable patents and other proprietary rights of third parties. Intellectual property rights may not address all potential threats to our competitive advantage.

We continually assess and refine our intellectual property strategy as we develop new product candidates. To that end, we are prepared to file additional patent applications in any appropriate fields if our intellectual property strategy includes such filings, or where we seek to adapt to competition or seize business opportunities. Further, we are prepared to file patent applications, as we consider appropriate under the circumstances, relating to the new technologies that we develop.

We cannot be sure that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications we may own or license in the future, nor can we be sure that any of our existing patents or any patents we may own or license in the future will be useful in protecting our technology.

To cover our proprietary technologies and our current pipeline of proprietary product candidates and related methods, such as methods of use, we have issued patents and patent applications representing thirty-eight patent families. As of December 31, 2021, our patent estate, which consists of owned and in-licensed patent families, includes seven issued US patents, eleven pending US non-provisional patent applications, fifty-one pending US provisional patent applications, three issued foreign patents, eleven pending international patent applications filed under the Patent Cooperation Treaty (PCT application), and ninety-four pending foreign patent applications in various markets outside of the United States. In particular, we have patent applications pending for each of our product candidates.

ERAS-007

As of December 31, 2021, we have in-licensed three patent families from Asana. The three patent families relate to ERK 1/2 inhibitors, their preparation, and methods of use. One of the families covers the ERAS-007 product candidate compound and additional ERK1/2 inhibitor compounds, their preparation and method of use, and includes four issued US patents, one pending US non-provisional patent application, three issued foreign patents, and fourteen pending foreign patent applications. The second and third families cover methods of using ERAS-007, and includes one pending US provisional patent application, one pending PCT application and two pending foreign patent applications. The issued US patents are expected to expire in June 2036, absent any patent term adjustments or extensions. Any patents issued from the patent applications related to ERAS-007 are expected to expire between 2036 and 2042, absent any patent term adjustments or extensions.

As of December 31, 2021, we also own six patent families relating to ERAS-007. The patent families include fifteen pending US provisional patent applications. Any patents issued from these patent applications are expected to expire in 2042, absent any patent term adjustments or extensions.

ERAS-601

As of December 31, 2021, we have in-licensed two patent families from NiKang. The two patent families relate to SHP2 inhibitor compositions, their preparation, and methods of use. One of the families covers the ERAS-601 product candidate compound, its preparation and method of use, and includes two issued US patents, two pending US non-provisional patent applications, and twenty-six pending foreign patent applications. The second family covers additional SHP2 inhibitor compositions, their preparation and methods of use, and includes one pending US non-provisional application and six pending foreign patent applications. The granted patent and any further patents that issue from these applications from the two families are expected to expire in 2039, absent any patent term adjustments or extensions.

As of December 31, 2021, we also own seven patent families relating to ERAS-601. These families include ten pending US provisional patent applications and three pending PCT applications. Any patents issued from these applications are expected to expire between 2041 and 2042, absent any patent term adjustments or extensions.

ERAS-3490

As of December 31, 2021, we own six patent families relating to KRAS G12C inhibitors, their preparation, and method of use. These patent families include four pending US non-provisional patent applications, eight pending US provisional patent applications, five pending PCT applications, and two pending foreign applications. Any patents issued from these applications are expected to expire between 2040 and 2042, absent any patent term adjustments or extensions.

ERAS-801

As of December 31, 2021, we have sub-licensed three patent families from Katmai, which Katmai in-licensed from the University of California, Los Angeles (UCLA). Two of the patent families relate to EGFR inhibitor compositions, their preparation, and methods of use. The first patent family includes one pending US non-provisional patent application, and eight pending foreign patent applications. The second patent family covers the ERAS-801 product candidate and includes one pending US non-provisional application and twenty-three pending foreign patent applications. The third patent family relates to a functional companion assay for brain cancer therapy and includes one pending PCT application. Any patents issued from the first family of applications are expected to expire in 2038, any patents issued from the second family of applications are expected to expire in 2040, and any patents issued from the third family of applications are expected to expire in 2041, in each case, absent any patent term adjustments or extensions.

As of December 31, 2021, we also co-own with UCLA one patent family relating to EGFR inhibitor compositions, their preparation and methods of use. This patent family includes one pending PCT application. Any patents issued from this application are expected to expire in 2041, absent any patent term adjustments or extensions.

As of December 31, 2021, we also own one patent family relating to EGFR inhibitor polymorph forms. This patent family includes one pending US provisional patent application. Any patents issued from this application are expected to expire in 2042, absent any patent term adjustments or extensions.

ERAS-2/3

As of December 31, 2021, we have in-licensed one patent family from UCSF relating to covalent inhibitors of GTP- and GDP-bound RAS, their preparation, and method of use. This patent family includes one issued US patent, one pending US non-provisional patent application and 13 pending foreign patent applications. The granted patent and any further patents that issue from these applications are expected to expire in 2037, absent any patent term adjustments or extensions.

ERAS-4

As of December 31, 2021, we own three patent families relating to KRAS G12D inhibitors, their preparation, and method of use. These patent families include six pending US provisional patent applications. Any patents issued from these applications are expected to expire in 2042, absent any patent term adjustments or extensions.

ERAS-5

As of December 31, 2021, we have in-licensed one patent family from LifeArc relating to ULK1/2 inhibitors, their preparation, and method of use. The patent family includes one pending US provisional patent application. Any patents issued from this application are expected to expire in 2042, absent any patent term adjustments or extensions.

As of December 31, 2021, we also own one patent family relating to ULK1/2 inhibitors, their preparation and method of use. This family includes one pending US provisional patent application. Any patents that issue from this application are expected to expire in 2042, absent any patent term adjustments or extensions.

ERAS-10

As of December 31, 2021, we own two patent families relating to PROTAC conjugates with undisclosed RAS/MAPK pathway target(s), their preparation, and method of use. These patent families includes seven pending US provisional patent applications. Any patents issued from these applications are expected to expire in 2042, absent any patent term adjustments or extensions.

ERAS-12

As of December 31, 2021, we own one patent family relating to EGFR D2/D3 bispecific antibodies, their preparation, and method of use. The patent family includes one pending US provisional patent application. Any patents issued from this application are expected to expire in 2042, absent any patent term adjustments or extensions.

Other IP programs or patents

With respect to our product candidates and processes we intend to develop and commercialize in the normal course of business, we intend to pursue patent protection covering, when possible, compositions, methods of use, dosing and formulations. We may also pursue patent protection with respect to manufacturing and drug development processes and technologies. Obtaining and maintaining patent protection depends on compliance with various procedural, document submission, fee payment, and other requirements imposed by governmental patent agencies. We may not be able to obtain patent protections for our compositions, methods of use, dosing and formulations, manufacturing and drug development processes and technologies throughout the world. Issued patents can provide protection for varying periods of time, depending upon the date of filing of the patent application, the date of patent issuance and the legal term of patents in the countries in which they are obtained. In general, patents issued for applications filed in the United States can provide exclusionary rights for 20 years from the earliest effective filing date. In addition, in certain instances, the term of an issued US patent that covers or claims an FDA-approved product can be extended to recapture a portion of the term effectively lost as a result of the FDA regulatory review period, which is called patent term extension. The restoration period cannot be longer than five years and the total patent term, including the restoration period, must not exceed 14 years following FDA approval. The US Patent and Trademark Office (USPTO) may also adjust the term of a US patent to accommodate for delays caused by the USPTO during the prosecution of a US patent application. Congress has defined the conditions upon which an applicant can receive an adjustment to the term and such requirements are established in 35 USC 154(b). Similar provisions are available in Europe and other jurisdictions to extend the term of a patent that covers an approved drug. The term of patents outside of the United States varies in accordance with the laws of the foreign jurisdiction, but typically is also 20 years from the earliest effective filing date. However, the actual protection afforded by a patent varies on a product-by-product basis, from country-to-country, and depends upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory-related extensions, the availability of legal remedies in a particular country, and the validity and enforceability of the patent. Patent terms may be inadequate to protect our competitive position on our products for an adequate amount of time. In the future, if and when our therapeutic candidates receive FDA approval, we expect to apply for patent term extensions on patents covering those therapeutic candidates. We intend to seek patent term extensions in any jurisdiction where these are available and where we also have a patent that may be eligible; however, there is no guarantee that the applicable authorities, including the USPTO and FDA, will agree with our assessment of whether such extensions should be granted, and even if granted, the length of such extensions.

The patent positions of companies like ours are generally uncertain and involve complex legal and factual questions. No consistent policy regarding the scope of claims allowable in patents in the field of biopharmaceuticals has emerged in the United States. The relevant patent laws and their interpretation outside of the United States is also uncertain. Changes in either the patent laws or their interpretation in the United States and other countries may diminish our ability to protect our technology or product candidates and could affect the value of such intellectual property. In particular, our ability to stop third parties from making, using, selling, offering to sell or importing products that infringe our intellectual property will depend in part on our success in obtaining and enforcing patent claims that cover our technology, inventions and improvements. We cannot guarantee that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications we may file in the future, nor can we be sure that any patents that may be granted to us in the future will be commercially useful in protecting our products, the methods of use or manufacture of those products. Moreover, even our issued patents do not guarantee us the right to practice our technology in relation to the commercialization of our products. Patent and other intellectual property rights in the pharmaceutical and biotechnology space are evolving and involve many risks and uncertainties. For example, third parties may have blocking patents that could be used to prevent us from commercializing our product candidates and practicing our proprietary technology, and our issued patents may be challenged, invalidated or circumvented, which could limit our ability to stop competitors from marketing related products or could limit the term of patent protection that otherwise may exist for our product candidates. In addition, the scope of the rights granted under any issued patents may not provide us with protection or competitive advantages against competitors with similar technology. Furthermore, our competitors may independently develop similar technologies that are outside the scope of the rights granted under any issued patents. For these reasons, we may face competition with respect to our product candidates. Moreover, because of the extensive time required for development, testing and regulatory review of a potential product, it is possible that, before any particular product candidate can be commercialized, any patent protection for such product may expire or remain in force for only a short period following commercialization, thereby reducing the commercial advantage the patent provides.

We also rely on trade secrets to protect aspects of our technology and business not amenable to, or that we do not consider appropriate for, patent protection. We seek to protect this intellectual property, in part, by requiring our employees, consultants, outside scientific collaborators, sponsored researchers and other service providers and advisors to execute confidentiality agreements upon the commencement of employment or other relationship with us. In general, these agreements provide that confidential information concerning our business or financial affairs developed or made

known to the individual during the course of the individual's relationship with us is to be kept confidential and not disclosed to third parties except in specific circumstances. In the case of employees, the agreements further provide that inventions and discoveries conceived or reduced to practice by the individual that are related to our business, or actual, or demonstrably anticipated, research or development, or made during normal working hours, on our premises or using our equipment, supplies, or proprietary information, are our exclusive property. In many cases our agreements with consultants, outside scientific collaborators, sponsored researchers and other service providers and advisors require them to assign, or grant us licenses to, inventions resulting from the work or services they render under such agreements or grant us an option to negotiate a license to use such inventions.

We seek trademark protection in the United States and in certain other jurisdictions where available and when we deem appropriate. We currently have registrations for our "ERASCA" mark in the United States as well as in over 20 foreign jurisdictions, including the European Union. We have also filed a trademark application in the United States as well as over 20 foreign jurisdictions for registration of our "MAPKLAMP" mark.

Manufacturing

We do not own or operate, and currently have no plans to establish, any manufacturing facilities. We rely, and expect to continue to rely, on third parties for the manufacture of our product candidates for preclinical and clinical testing, as well as for commercial manufacture if any of our product candidates obtain marketing approval. We are working with our current manufacturers to ensure that we will be able to scale up our manufacturing capabilities to support our clinical plans. We are also in the process of locating and qualifying additional manufacturers to build redundancies into our supply chain. In addition, we rely on third parties to package, label, store, and distribute our product candidates, and we intend to rely on third parties for our commercial products if marketing approval is obtained. We believe that this strategy allows us to maintain a more efficient infrastructure by eliminating the need for us to invest in our own manufacturing facilities, equipment, and personnel while also enabling us to focus our expertise and resources on the design and development of our product candidates.

Government Regulation

The FDA and comparable regulatory authorities in state and local jurisdictions and in other countries impose substantial and burdensome requirements upon companies involved in the clinical development, manufacture, marketing and distribution of drugs and biologics such as those we are developing. These entities regulate, among other things, the research and development, testing, manufacture, quality control, safety, effectiveness, labeling, storage, record keeping, approval, advertising and promotion, distribution, post-approval monitoring and reporting, sampling and export and import of our product candidates.

US regulation of drugs and biologics

In the United States, the FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act (FDCA), and its implementing regulations, and biologics under the FDCA and the Public Health Service Act and their implementing regulations. FDA approval of a new drug application (NDA) or biologics license application (BLA) or supplement is required before any new unapproved drug, biologic or dosage form, including a new use of a previously approved drug or biologic, can be marketed in the United States.

The process required by the FDA before such product candidates may be marketed in the United States generally involves the following:

- completion of extensive preclinical laboratory tests and preclinical animal studies, performed in accordance with applicable Good Laboratory Practice (GLP) regulations;
- submission to the FDA of an investigational new drug application (IND) which must become effective before human clinical studies may begin and must be updated annually;
- approval by an independent institutional review board (IRB) or ethics committee representing each clinical site before each clinical study may be initiated;
- performance of adequate and well-controlled human clinical studies in accordance with Good Clinical Practice (GCP) requirements to establish the safety and efficacy, or with respect to biologics, the safety, purity and potency of the product candidate for each proposed indication;
- preparation of and submission to the FDA of an NDA or BLA, after completion of all pivotal clinical studies;

- potential review of the product application by an FDA advisory committee, where appropriate and if applicable;
- a determination by the FDA within 60 days of its receipt of an NDA or BLA to file the application for review;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facilities where the proposed product drug substance is produced to assess compliance with current Good Manufacturing Practice requirements (cGMPs) and audits of selected clinical trial sites to ensure compliance with GCP; and
- FDA review and approval of an NDA or BLA prior to any commercial marketing or sale of the drug in the United States.

Preclinical studies include laboratory evaluation of product chemistry, toxicity and formulation, as well as *in vitro* and animal studies to assess potential safety and efficacy. The conduct of preclinical studies is subject to federal regulations and requirements, including GLP regulations applicable to certain safety/toxicology studies.

An IND is a request for authorization from the FDA to administer an investigational new drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol or protocols for preclinical studies and clinical trials. The IND also includes results of animal and in vitro studies assessing the toxicology, pharmacokinetics, pharmacology and pharmacodynamic characteristics of the product, chemistry, manufacturing and controls (CMC) information, and any available human data or literature to support the use of the investigational product. An IND must become effective before human clinical trials may begin. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day period, raises safety concerns or questions about the proposed clinical trial. In such a case, the IND may be placed on clinical hold and the IND sponsor and the FDA must resolve any outstanding concerns or questions before the clinical trial can begin. Submission of an IND therefore may or may not result in FDA authorization to begin a clinical trial.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with GCP, which includes the requirement that all research subjects, or their legal representative, provide their informed consent for their participation in any clinical study. Clinical trials are conducted under protocols detailing, among other things, the inclusion and exclusion criteria, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A separate submission to the existing IND must be made for each successive clinical trial conducted during product development and for any subsequent protocol amendments. Furthermore, an independent IRB for each site proposing to conduct the clinical trial must review and approve the plan for any clinical trial and its informed consent form before the clinical trial begins at that site, and must monitor the study until completed. An IRB is charged with protecting the welfare and rights of trial participants and considers such items as whether the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. Regulatory authorities, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk or that the trial is unlikely to meet its stated objectives. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board or committee, which provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study and may recommend that the clinical trial be halted if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. There are also requirements governing the reporting of clinical trials and clinical study results to public registries.

The clinical investigation of a drug is generally divided into three phases. Although the phases are usually conducted sequentially, they may overlap or be combined.

- ***Phase 1***: The investigational product is initially introduced into healthy human subjects or patients with the target disease or condition. These studies are designed to test the safety, dosage tolerance, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness.

- ***Phase 2***: The investigational product is administered to a limited patient population with a specified disease or condition to evaluate the preliminary efficacy, optimal dosages and dosing schedule and to identify possible adverse side effects and safety risks. Multiple Phase 2 clinical trials may be conducted to obtain information prior to beginning larger and more expensive Phase 3 clinical trials.

- ***Phase 3***: The investigational product is administered to an expanded patient population to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for labeling.

Post-marketing studies, sometimes referred to as Phase 4 clinical trials, may be conducted after initial marketing approval. These clinical trials are used to gain additional experience from the treatment of patients in the intended therapeutic indication. In certain instances, such as with accelerated approval drugs, the FDA may mandate the performance of Phase 4 clinical trials as a condition of approval.

Concurrent with clinical trials, companies may complete additional animal studies and develop additional information about the biological characteristics of the product candidate, and must finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, must develop methods for testing the identity, strength, quality and purity of the final product, or for biologics, the safety, purity and potency.

While the IND is active, progress reports summarizing the results of the clinical trials and nonclinical studies performed since the last progress report, among other things, must be submitted at least annually to the FDA, and written IND safety reports must be submitted to the FDA and investigators for serious and unexpected suspected adverse events, findings from other studies suggesting a significant risk to humans exposed to the same or similar drugs or biologics, findings from animal or *in vitro* testing suggesting a significant risk to humans, and any clinically important increased incidence of a serious suspected adverse reaction compared to that listed in the protocol or investigator brochure.

In addition, during the development of a new drug or biologic, sponsors are given opportunities to meet with the FDA at certain points. These points may be prior to submission of an IND, at the end of Phase 2, and before an NDA or BLA is submitted. Meetings at other times may be requested. These meetings can provide an opportunity for the sponsor to share information about the data gathered to date, for the FDA to provide advice, and for the sponsor and the FDA to reach agreement on the next phase of development. Sponsors typically use the meetings at the end of the Phase 2 trial to discuss Phase 2 clinical results and present plans for the pivotal Phase 3 clinical trials that they believe will support approval of the new drug or biologic.

NDA and BLA review process

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, nonclinical studies and clinical trials are submitted to the FDA as part of an NDA or BLA requesting approval to market the product for one or more indications. The submission of an NDA or BLA requires payment of a substantial application user fee to the FDA, unless a waiver or exemption applies.

The NDA or BLA must include all relevant data available from pertinent preclinical studies and clinical trials, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's CMC and proposed labeling, among other things. Data can come from company-sponsored clinical studies intended to test the safety and effectiveness of the product, or from a number of alternative sources, including studies initiated and sponsored by investigators.

In addition, under the Pediatric Research Equity Act (PREA), an NDA or BLA or supplement to an NDA or BLA must contain data to assess the safety and effectiveness of the biological product candidate for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The Food and Drug Administration Safety and Innovation Act requires that a sponsor who is planning to submit a marketing application for a drug or biological product that includes a new active ingredient, new indication, new dosage form, new dosing regimen or new route of administration submit an initial pediatric study plan within sixty days after an end-of-Phase 2 meeting or as may be agreed between the sponsor and FDA. Unless otherwise required by regulation, PREA does not apply to any drug or biological product for an indication for which orphan designation has been granted.

Within 60 days following submission of the application, the FDA reviews the submitted BLA or NDA to determine if the application is substantially complete before the agency accepts it for filing. The FDA may refuse to file any NDA or BLA that it deems incomplete or not properly reviewable at the time of submission and may request additional information. In this event, the NDA or BLA must be resubmitted with the additional information. Once an NDA or BLA has been accepted for filing, the FDA's goal is to review standard applications within ten months after the filing date, or, if the application qualifies for priority review, six months after the FDA accepts the application for filing. In both standard and priority

reviews, the review process may also be extended by FDA requests for additional information or clarification. Once accepted for filing, the FDA reviews an NDA to determine, among other things, whether a product is safe and effective for its intended use and whether its manufacturing is sufficient to assure and preserve the product's identity, strength, quality and purity. The FDA reviews a BLA to determine, among other things, whether a product is safe, pure and potent and the facility in which it is manufactured, processed, packed or held meets standards designed to assure the product's continued safety, purity and potency. When reviewing an NDA or BLA, the FDA may convene an advisory committee to provide clinical insight on application review questions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Before approving an NDA or BLA, the FDA will typically inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving an NDA or BLA, the FDA will typically inspect one or more clinical sites to assure compliance with GCP.

After the FDA evaluates the NDA or BLA and conducts inspections of manufacturing facilities where the investigational product and/or its drug substance will be produced, the FDA may issue an approval letter or a Complete Response Letter (CRL). An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A CRL signals that the review cycle is complete and the application cannot be approved in its present form. The CRL will generally describe all of the deficiencies that the FDA has identified in the NDA or BLA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the CRL without first conducting required inspections, testing submitted product lots and/or reviewing proposed labeling. In issuing the CRL, the FDA may recommend actions that the applicant might take to place the NDA or BLA in condition for approval, including requests for additional information or clarification. The FDA may delay or refuse approval of an NDA or BLA if applicable regulatory criteria are not satisfied, require additional testing or information and/or require post-marketing testing and surveillance to monitor safety or efficacy of a product.

If regulatory approval of a product is granted, such approval will be granted for particular indications and may entail limitations on the indicated uses for which such product may be marketed. For example, the FDA may approve the NDA or BLA with a Risk Evaluation and Mitigation Strategy (REMS) to ensure the benefits of the product outweigh its risks. A REMS is a safety strategy to manage a known or potential serious risk associated with a product and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling or the development of adequate controls and specifications. Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. The FDA may require one or more Phase 4 post-market studies and surveillance to further assess and monitor the product's safety and effectiveness after commercialization, and may limit further marketing of the product based on the results of these post-marketing studies.

Expedited development and review programs

The FDA offers a number of expedited development and review programs for qualifying product candidates. For example, the fast track program is intended to expedite or facilitate the process for reviewing product candidates that meet certain criteria. Specifically, product candidates are eligible for fast track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. Fast track designation applies to the combination of the product candidate and the specific indication for which it is being studied. The sponsor of a fast track product candidate has opportunities for more frequent interactions with the review team during product development and, once an NDA or BLA is submitted, the product may be eligible for priority review, if the relevant criteria are met. A fast track product candidate may also be eligible for rolling review, where the FDA may consider for review sections of the NDA or BLA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the NDA or BLA, the FDA agrees to accept sections of the NDA or BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the NDA or BLA.

A product candidate intended to treat a serious or life-threatening disease or condition may also be eligible for breakthrough therapy designation to expedite its development and review. A product can receive breakthrough therapy designation if preliminary clinical evidence indicates that the product candidate, alone or in combination with one or more other drugs or biologics, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The designation

includes all of the fast track program features, as well as more intensive FDA interaction and guidance beginning as early as Phase 1 and an organizational commitment to expedite the development and review of the product candidate, including involvement of senior managers.

Any marketing application for a drug or biologic submitted to the FDA for approval, including a product candidate with a fast track designation and/or breakthrough therapy designation, may be eligible for other types of FDA programs intended to expedite the FDA review and approval process, such as priority review and accelerated approval. An NDA or BLA is eligible for priority review if the product candidate has the potential to provide a significant improvement in the treatment, diagnosis or prevention of a serious disease or condition. For new molecular entity NDAs and original BLAs, priority review designation means the FDA's goal is to take action on the marketing application within six months of the 60-day filing date (as compared to 10 months under standard review).

Additionally, product candidates studied for their safety and effectiveness in treating serious or life-threatening diseases or conditions may receive accelerated approval upon a determination that the product candidate has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of accelerated approval, the FDA will generally require the sponsor to perform adequate and well-controlled post-marketing clinical studies to verify and describe the anticipated effect on irreversible morbidity or mortality or other clinical benefit. Products receiving accelerated approval may be subject to expedited withdrawal procedures if the sponsor fails to conduct the required post-marketing studies or if such studies fail to verify the predicted clinical benefit. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product.

Fast track designation, breakthrough therapy designation, priority review, and accelerated approval do not change the standards for approval but may expedite the development or approval process. Even if a product qualifies for one or more of these programs, the FDA may later decide that the product no longer meets the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

Orphan drug designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, which is a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the United States for which there is no reasonable expectation that the cost of developing and making available in the United States a drug or biologic for this type of disease or condition will be recovered from sales in the United States for that drug or biologic. Orphan drug designation must be requested before submitting an NDA or BLA. After the FDA grants orphan drug designation, the generic identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. The orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process.

If a product candidate that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusive approval (or exclusivity), which means that the FDA may not approve any other applications, including a full NDA or BLA, to market the same drug or biologic for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity or if the FDA finds that the holder of the orphan drug exclusivity has not shown that it can assure the availability of sufficient quantities of the orphan drug to meet the needs of patients with the disease or condition for which the drug or biologic was designated. Orphan drug exclusivity does not prevent the FDA from approving a different drug or biologic for the same disease or condition, or the same drug or biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the NDA or BLA application user fee.

A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan designation. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Post-approval requirements

Any products manufactured or distributed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to record-keeping, reporting of adverse experiences, periodic reporting, product sampling and distribution, and advertising and promotion of the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There also are continuing user fee requirements, under which the FDA assesses an annual program fee for each product identified in an approved NDA or BLA. Drug and biologic manufacturers and their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMPs, which impose certain procedural and documentation requirements upon us and our third-party manufacturers. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMPs and impose reporting requirements upon us and any third-party manufacturers that we may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMPs and other aspects of regulatory compliance.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical studies to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of a product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters or holds on post-approval clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of existing product approvals;
- product seizure or detention, or refusal of the FDA to permit the import or export of products;
- consent decrees, corporate integrity agreements, debarment or exclusion from federal healthcare programs;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- injunctions or the imposition of civil or criminal penalties.

The FDA closely regulates the marketing, labeling, advertising and promotion of drug products. A company can make only those claims relating to safety and efficacy, purity and potency that are approved by the FDA and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe, in their independent professional medical judgment, legally available products for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products. The federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined companies from engaging in off-label promotion. The FDA and other regulatory agencies have also required that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. However, companies may share truthful and not misleading information that is otherwise consistent with a product's FDA-approved labeling.

In addition, the distribution of prescription biopharmaceutical products is subject to the Prescription Drug Marketing Act (PDMA) which regulates the distribution of drugs and drug samples at the federal level, and sets minimum standards for the registration and regulation of drug distributors by the states. Both the PDMA and state laws limit the distribution of prescription pharmaceutical product samples and impose requirements to ensure accountability in distribution.

Drug product marketing exclusivity

Market exclusivity provisions under the FDCA can delay the submission or the approval of certain marketing applications. For example, the FDCA provides a five-year period of non-patent marketing exclusivity within the United States to the first applicant to obtain approval of an NDA for a new chemical entity. A drug is a new chemical entity if the FDA has not previously approved any other new drug containing the same active moiety, which is the molecule or ion responsible for the action of the drug substance. During the exclusivity period, the FDA may not approve or even accept for review an abbreviated new drug application (ANDA), or an NDA submitted under Section 505(b)(2), or 505(b)(2) NDA, submitted by another company for another drug based on the same active moiety, regardless of whether the drug is intended for the same indication as the original innovative drug or for another indication, where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement to one of the patents listed with the FDA by the innovator NDA holder.

The FDCA alternatively provides three years of marketing exclusivity for an NDA, or supplement to an existing NDA if new clinical investigations, other than bioavailability studies, that were conducted or sponsored by the applicant are deemed by the FDA to be essential to the approval of the application, for example new indications, dosages or strengths of an existing drug. This three-year exclusivity covers only the modification for which the drug received approval on the basis of the new clinical investigations and does not prohibit the FDA from approving ANDAs or 505(b)(2) NDAs for drugs containing the active agent for the original indication or condition of use. Five-year and three-year exclusivity will not delay the submission or approval of a full NDA. However, an applicant submitting a full NDA would be required to conduct or obtain a right of reference to any preclinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and effectiveness.

Pediatric exclusivity is another type of marketing exclusivity available in the United States. Pediatric exclusivity provides for an additional six months of marketing exclusivity attached to another period of exclusivity if a sponsor conducts clinical trials in children in response to a Written Request from the FDA. The issuance of a written request does not require the sponsor to undertake the described clinical trials. In addition, orphan drug exclusivity, as described above, may offer a seven-year period of marketing exclusivity, except in certain circumstances.

Biosimilars and reference product exclusivity

The Biologics Price Competition and Innovation Act of 2009 (BPCIA) created an abbreviated approval pathway for biological products that are highly similar, or “biosimilar,” to or interchangeable with an FDA-approved reference biological product. Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, is generally shown through analytical studies, animal studies, and a clinical study or studies. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic. A product shown to be biosimilar or interchangeable with an FDA-approved reference biological product may rely in part on the FDA’s previous determination of safety and effectiveness for the reference product for approval, which can potentially reduce the cost and time required to obtain approval to market the product.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing that applicant’s own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of its product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. At this juncture, it is unclear whether products deemed “interchangeable” by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law.

A biological product can also obtain pediatric market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and patent terms. This six-month exclusivity, which runs from the end of other exclusivity protection or patent term, may be granted based on the voluntary completion of a pediatric study in accordance with an FDA-issued “Written Request” for such a study.

FDA regulation of companion diagnostics

If safe and effective use of a drug or biologic depends on an *in vitro* diagnostic, then the FDA may require approval or clearance of that diagnostic, known as a companion diagnostic, at the same time that the FDA approves the therapeutic product. In August 2014, the FDA issued final guidance clarifying the requirements that will apply to approval of therapeutic products and in vitro companion diagnostics. According to the guidance, if FDA determines that a companion diagnostic device is essential to the safe and effective use of a novel therapeutic product or indication, FDA may will not approve the drug or new indication if the companion diagnostic device is not also approved or cleared for that indication. Approval or clearance of the companion diagnostic device will ensure that the device has been adequately evaluated and has adequate performance characteristics in the intended population. The review of *in vitro* companion diagnostics in conjunction with the review of our product candidates will, therefore, likely involve coordination of review by the FDA's Center for Drug Evaluation and Research or the FDA's Center for Biologics Evaluation and Research and the FDA's Center for Devices and Radiological Health Office of In Vitro Diagnostics and Radiological Health.

Under the FDCA, *in vitro* diagnostics, including companion diagnostics, are regulated as medical devices. In the United States, the FDCA and its implementing regulations, and other federal and state statutes and regulations govern, among other things, medical device design and development, preclinical and clinical testing, premarket clearance or approval, registration and listing, manufacturing, labeling, storage, advertising and promotion, sales and distribution, export and import, and post-market surveillance. Unless an exemption applies, diagnostic tests require marketing clearance or approval from the FDA prior to commercial distribution. The two primary types of FDA marketing authorization applicable to a medical device are clearance of a premarket notification pursuant to Section 510(k) of the FDCA, also called 510(k) clearance, and approval of a premarket approval application (PMA).

The PMA process, including the gathering of clinical and preclinical data and the submission to and review by the FDA, can take several years or longer. It involves a rigorous premarket review during which the applicant must prepare and provide the FDA with reasonable assurance of the device's safety and effectiveness and information about the device and its components regarding, among other things, device design, manufacturing and labeling. PMA applications are subject to an application fee. In addition, PMAs for certain devices must generally include the results from extensive preclinical and adequate and well-controlled clinical trials to establish the safety and effectiveness of the device for each indication for which FDA approval is sought. As part of the PMA review, the FDA will typically inspect the manufacturer's facilities for compliance with the Quality System Regulation (QSR) which imposes elaborate testing, control, documentation and other quality assurance requirements.

If the FDA's evaluation of the PMA application is favorable, the FDA typically issues an approvable letter requiring the applicant's agreement to specific conditions, such as changes in labeling, or specific additional information, such as submission of final labeling, in order to secure final approval of the PMA. If the FDA's evaluation of the PMA or manufacturing facilities is not favorable, the FDA will deny approval of the PMA or issue a not approvable letter. A not approvable letter will outline the deficiencies in the application and, where practical, will identify what is necessary to make the PMA approvable. The FDA may also determine that additional clinical trials are necessary, in which case the PMA approval may be delayed for several months or years while the trials are conducted and then the data submitted in an amendment to the PMA. If the FDA concludes that the applicable criteria have been met, the FDA will issue a PMA for the approved indications, which can be more limited than those originally sought by the applicant. The PMA can include post-approval conditions that the FDA believes necessary to ensure the safety and effectiveness of the device, including, among other things, restrictions on labeling, promotion, sale and distribution. Once granted, PMA approval may be withdrawn by the FDA if compliance with post-approval requirements, conditions of approval or other regulatory standards are not maintained or problems are identified following initial marketing.

After a device is placed on the market, it remains subject to significant regulatory requirements. Medical devices may be marketed only for the uses and indications for which they are cleared or approved. Device manufacturers must also establish registration and device listings with the FDA. A medical device manufacturer's manufacturing processes and those of its suppliers are required to comply with the applicable portions of the QSR, which cover the methods and documentation of the design, testing, production, processes, controls, quality assurance, labeling, packaging and shipping of medical devices. Domestic facility records and manufacturing processes are subject to periodic unscheduled inspections by the FDA. The FDA also may inspect foreign facilities that export products to the United States.

Other US regulatory requirements

In addition to FDA regulation of pharmaceutical products, pharmaceutical companies are also subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business and may constrain the financial arrangements and relationships through which we research, as well as sell, market and distribute any products for which we obtain marketing authorization. Such laws include, without limitation, state and federal anti-kickback, fraud and abuse, false claims, data privacy and security, and transparency laws and regulations related to drug pricing and payments and other transfers of value made to physicians and other healthcare providers. If their operations are found to be in violation of any of such laws or any other governmental regulations that apply, they may be subject to penalties, including, without limitation, administrative, civil and criminal penalties, damages, fines, disgorgement, the curtailment or restructuring of operations, integrity oversight and reporting obligations, exclusion from participation in federal and state healthcare programs and imprisonment.

US coverage and reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any product candidate for which we may seek regulatory approval. Sales in the United States will depend, in part, on the availability of sufficient coverage and adequate reimbursement from third-party payors, which include government health programs such as Medicare, Medicaid, TRICARE and the Veterans Administration, as well as managed care organizations and private health insurers. Prices at which we or our customers seek reimbursement for our product candidates can be subject to challenge, reduction or denial by third-party payors.

The process for determining whether a third-party payor will provide coverage for a product is typically separate from the process for setting the reimbursement rate that the payor will pay for the product. In the United States, there is no uniform policy among payors for coverage or reimbursement. Decisions regarding whether to cover any of a product, the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own coverage and reimbursement policies, but also have their own methods and approval processes. Therefore, coverage and reimbursement for products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that can require manufacturers to provide scientific and clinical support for the use of a product to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance. In addition, companion diagnostic tests require coverage and reimbursement separate and apart from the coverage and reimbursement for their companion pharmaceutical or biological products. Similar challenges to obtaining coverage and reimbursement, applicable to pharmaceutical or biological products, will apply to companion diagnostics.

Third-party payors are increasingly challenging the price and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. Third-party payors may not consider our product candidates to be medically necessary or cost-effective compared to other available therapies. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit sales of any product that receives approval.

US healthcare reform

In the United States, there have been, and continue to be, legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of product candidates, restrict or regulate post-approval activities, and affect the profitable sale of product candidates. Among policy makers and payors in the United States, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives.

By way of example, in March 2010, the Patient Protection and Affordable Care Act (the ACA) was passed, which substantially changed the way healthcare is financed by both governmental and private insurers, and significantly affected the pharmaceutical industry. The ACA, among other things, increased the minimum level of Medicaid rebates payable by manufacturers of brand name drugs from 15.1% to 23.1% of the average manufacturer price; required collection of rebates for drugs paid by Medicaid managed care organizations; required manufacturers to participate in a coverage gap discount program, in which manufacturers must agree to offer point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer’s outpatient drugs to be covered under Medicare Part D; imposed a non-deductible annual fee on pharmaceutical manufacturers or importers who sell certain “branded prescription drugs” to specified federal government programs; implemented a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs

that are inhaled, infused, instilled, implanted, or injected; expanded eligibility criteria for Medicaid programs; creates a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research; and established a Center for Medicare Innovation at the Centers for Medicare & Medicaid Services (CMS) to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending.

Since its enactment, there have been judicial, executive and political challenges to certain aspects of the ACA. On June 17, 2021, the US Supreme Court dismissed a challenge on procedural grounds that argued the ACA is unconstitutional in its entirety because the “individual mandate” was repealed by Congress. Thus, the ACA will remain in effect in its current form. Prior to the US Supreme Court ruling, President Biden issued an executive order that initiated initiate a special enrollment period from February 15, 2021 through August 15, 2021 for purposes of obtaining health insurance coverage through the ACA marketplace. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. It is unclear how other healthcare reform measures of the Biden administration will impact our business.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. These changes included aggregate reductions to Medicare payments to providers of 2% per fiscal year, which went into effect on April 1, 2013 and, due to subsequent legislative amendments to the statute, will remain in effect through 2030, with the exception of a temporary suspension from May 1, 2020 through March 31, 2022, unless additional Congressional action is taken. On January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, reduced Medicare payments to several providers, including hospitals, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Moreover, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for pharmaceutical products. Further, we expect that additional healthcare reform measures will be adopted in the future, particularly in light of the new presidential administration.

Individual states in the United States have also become increasingly active in implementing regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine which drugs and suppliers will be included in their healthcare programs Furthermore, there has been increased interest by third party payors and governmental authorities in reference pricing systems and publication of discounts and list prices.

EU drug regulation

In order to market any product outside of the United States, we would need to comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding quality, safety and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of our products. Whether or not we obtain FDA approval for a product, we would need to obtain the necessary approvals by the comparable foreign regulatory authorities before we can commence clinical trials or marketing of the product in foreign countries and jurisdictions such as in China and Japan. Although many of the issues discussed above with respect to the United States apply similarly in the context of the European Union (EU), the approval process varies between countries and jurisdictions and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries and jurisdictions might differ from and be longer than that required to obtain FDA approval. Regulatory approval in one country or jurisdiction does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country or jurisdiction may negatively impact the regulatory process in others. Failure to comply with applicable foreign regulatory requirements, may be subject to, among other things, fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

Non-clinical studies and clinical trials

Similarly to the United States, the various phases of non-clinical and clinical research in the EU are subject to significant regulatory controls.

Non-clinical studies are performed to demonstrate the health or environmental safety of new chemical or biological substances. Non-clinical studies must be conducted in compliance with the principles of good laboratory practice (GLP) as set forth in EU Directive 2004/10/EC. In particular, non-clinical studies, both in vitro and in vivo, must be planned, performed, monitored, recorded, reported and archived in accordance with the GLP principles, which define a set of rules and criteria for a quality system for the organizational process and the conditions for non-clinical studies. These GLP standards reflect the Organization for Economic Co-operation and Development requirements.

Clinical trials of medicinal products in the EU must be conducted in accordance with EU and national regulations and the International Conference on Harmonization (ICH) guidelines on GCP as well as the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki. Additional GCP guidelines from the European Commission, focusing in particular on traceability, apply to clinical trials of advanced therapy medicinal products. If the sponsor of the clinical trial is not established within the EU, it must appoint an entity within the EU to act as its legal representative. The sponsor must take out a clinical trial insurance policy, and in most EU member states, the sponsor is liable to provide ‘no fault’ compensation to any study subject injured in the clinical trial.

Certain countries outside of the United States, including the EU, have a similar process that requires the submission of a clinical study application (CTA) much like the IND prior to the commencement of human clinical studies. A CTA must be submitted to each country’s national health authority and an independent ethics committee, much like the FDA and the IRB, respectively. Once the CTA is approved by the national health authority and the ethics committee has granted a positive opinion in relation to the conduct of the trial in the relevant member state(s), in accordance with a country’s requirements, clinical study development may proceed.

The CTA must include, among other things, a copy of the trial protocol and an investigational medicinal product dossier containing information about the manufacture and quality of the medicinal product under investigation. Currently, CTAs must be submitted to the competent authority in each EU member state in which the trial will be conducted. Under the new Regulation on Clinical Trials, which is currently expected to become applicable by early 2022, there will be a centralized application procedure where one national authority takes the lead in reviewing the application and the other national authorities have only a limited involvement. Any substantial changes to the trial protocol or other information submitted with the CTA must be notified to or approved by the relevant competent authorities and ethics committees. Medicines used in clinical trials must be manufactured in accordance with good manufacturing practice (GMP). Other national and EU-wide regulatory requirements also apply.

Marketing Authorizations

To market a medicinal product in the EU and in many other foreign jurisdictions, we must obtain separate regulatory approvals. More concretely, in the EU, medicinal product candidates can only be commercialized after obtaining a Marketing Authorization (MA). To obtain regulatory approval of an investigational medicinal product under EU regulatory systems, we must submit a marketing authorization application (MAA.) The process for doing this depends, among other things, on the nature of the medicinal product. There are two types of MAs:

- the “Union MA”, which is issued by the European Commission through the Centralized Procedure, based on the opinion of the Committee for Medicinal Products for Human Use (CHMP) of the European Medicines Agency (EMA) and which is valid throughout the entire territory of the EU. The Centralized Procedure is mandatory for certain types of products, such as: (i) medicinal products derived from biotechnology medicinal products, (ii) designated orphan medicinal products, (iii) advanced therapy products (such as gene therapy, somatic cell therapy or tissue-engineered medicines), and (iv) medicinal products containing a new active substance indicated for the treatment certain diseases, such as HIV/AIDS, cancer, neurodegenerative diseases, diabetes, other auto-immune and viral diseases. The Centralized Procedure is optional for products containing a new active substance not yet authorized in the EU, or for products that constitute a significant therapeutic, scientific or technical innovation or that the granting of authorization would be in the interest of public health in the EU; and
- “National MAs”, which are issued by the competent authorities of the EU member states and only cover their respective territory, are available for products not falling within the mandatory scope of the Centralized Procedure. Where a product has already been authorized for marketing in an EU member state, this National MA can be recognized in another member state through the Mutual Recognition Procedure. If the product has not received a National MA in any member state at the time of application, it can be approved simultaneously in various member states through the Decentralized Procedure. Under the Decentralized Procedure an identical dossier is submitted to the competent authorities of each of the member states in which the MA is sought, one of which is selected by the applicant as the Reference member state.

Under the above-described procedures, in order to grant the MA, the EMA or the competent authorities of the EU member states make an assessment of the risk-benefit balance of the product on the basis of scientific criteria concerning its quality, safety and efficacy.

Under the Centralized Procedure, the maximum timeframe for the evaluation of a MAA by the EMA is 210 days. Where there is a major public health interest and an unmet medical need for a product, the CHMP may perform an accelerated review of a MA in no more than 150 days (not including clock stops). Innovative products that target an unmet medical need and are expected to be of major public health interest may be eligible for a number of expedited development and review programs, such as the PRIME scheme, which provides incentives similar to the breakthrough therapy designation in the US PRIME is a voluntary scheme aimed at enhancing the EMA's support for the development of medicines that target unmet medical needs. It is based on increased interaction and early dialogue with companies developing promising medicines, to optimize their product development plans and speed up their evaluation to help them reach patients earlier. Product developers that benefit from PRIME designation can expect to be eligible for accelerated assessment but this is not guaranteed. The benefits of a PRIME designation include the appointment of a CHMP rapporteur before submission of a MAA, early dialogue and scientific advice at key development milestones, and the potential to qualify products for accelerated review earlier in the application process.

MAs have an initial duration of five years. After these five years, the authorization may be renewed for an unlimited period on the basis of a reevaluation of the risk-benefit balance, unless the EMA decides, on justified grounds relating to pharmacovigilance, to mandate one additional five-year renewal period.

Data and marketing exclusivity

The EU also provides opportunities for market exclusivity. Upon receiving MA, new chemical entity, or reference product candidates, generally receive eight years of data exclusivity and an additional two years of market exclusivity. If granted, the data exclusivity period prevents generic or biosimilar applicants from relying on the pre-clinical and clinical trial data contained in the dossier of the reference product when applying for a generic or biosimilar MA in the EU during a period of eight years from the date on which the reference product was first authorized in the EU. The market exclusivity period prevents a successful generic or biosimilar applicant from commercializing its product in the EU until 10 years have elapsed from the initial authorization of the reference product in the EU. The overall 10-year market exclusivity period can be extended to a maximum of eleven years if, during the first eight years of those 10 years, the MA holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are held to bring a significant clinical benefit in comparison with existing therapies. However, there is no guarantee that a product will be considered by the EU's regulatory authorities to be a new chemical entity, and products may not qualify for data exclusivity.

Pediatric Development

In the EU, MAAs for new medicinal products candidates have to include the results of trials conducted in the pediatric population, in compliance with a pediatric investigation plan (PIP) agreed with the EMA's Pediatric Committee (PDCO). The PIP sets out the timing and measures proposed to generate data to support a pediatric indication of the drug for which MA is being sought. The PDCO can grant a deferral of the obligation to implement some or all of the measures of the PIP until there is sufficient data to demonstrate the efficacy and safety of the product in adults. Further, the obligation to provide pediatric clinical trial data can be waived by the PDCO when these data is not needed or appropriate because the product is likely to be ineffective or unsafe in children, the disease or condition for which the product is intended occurs only in adult populations, or when the product does not represent a significant therapeutic benefit over existing treatments for pediatric patients. Once the MA is obtained in all EU Member States and study results are included in the product information, even when negative, the product is eligible for six months' supplementary protection certificate extension (if any is in effect at the time of authorization).

Post-Approval Requirements

Similar to the United States, both MA holders and manufacturers of medicinal products are subject to comprehensive regulatory oversight by the EMA, the European Commission and/or the competent regulatory authorities of the member states. The holder of a MA must establish and maintain a pharmacovigilance system and appoint an individual qualified person for pharmacovigilance who is responsible for oversight of that system. Key obligations include expedited reporting of suspected serious adverse reactions and submission of periodic safety update reports (PSURs).

All new MAA must include a risk management plan (RMP) describing the risk management system that the company will put in place and documenting measures to prevent or minimize the risks associated with the product. The regulatory authorities may also impose specific obligations as a condition of the MA. Such risk-minimization measures or post-authorization obligations may include additional safety monitoring, more frequent submission of PSURs, or the conduct of additional clinical trials or post-authorization safety studies.

The advertising and promotion of medicinal products is also subject to laws concerning promotion of medicinal products, interactions with physicians, misleading and comparative advertising and unfair commercial practices. All advertising and promotional activities for the product must be consistent with the approved summary of product characteristics, and therefore all off-label promotion is prohibited. Direct-to-consumer advertising of prescription medicines is also prohibited in the EU. Although general requirements for advertising and promotion of medicinal products are established under EU directives, the details are governed by regulations in each member state and can differ from one country to another.

The aforementioned EU rules are generally applicable in the European Economic Area (EEA) which consists of the 27 EU member states plus Norway, Liechtenstein and Iceland.

For other countries outside of the EU, such as countries in Latin America or Asia (e.g., China and Japan), the requirements governing the conduct of clinical studies, product licensing, pricing and reimbursement vary from country to country. In all cases, again, the clinical studies are conducted in accordance with GCP and the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki. If we fail to comply with applicable foreign regulatory requirements, we may be subject to, among other things, fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

Data Privacy and Security Laws

Numerous state, federal and foreign laws, regulations and standards govern the collection, use, access to, confidentiality and security of health-related and other personal information, and could apply now or in the future to our operations or the operations of our partners. In the United States, numerous federal and state laws and regulations, including data breach notification laws, health information privacy and security laws and consumer protection laws and regulations govern the collection, use, disclosure, and protection of health-related and other personal information. In addition, certain foreign laws govern the privacy and security of personal data, including health-related data. For example, the GDPR imposes strict requirements for processing the personal data of individuals within the EEA. Companies that must comply with the GDPR face increased compliance obligations and risk, including more robust regulatory enforcement of data protection requirements and potential fines for noncompliance of up to €20 million or 4% of the annual global revenues of the noncompliant company, whichever is greater. Further, from January 1, 2021, companies have had to comply with the GDPR and also the UK GDPR, which, together with the amended UK Data Protection Act 2018, retains the GDPR in UK national law. The UK GDPR mirrors the fines under the GDPR, i.e., fines up to the greater of €20 million (£17.5 million) or 4% of global turnover. Privacy and security laws, regulations, and other obligations are constantly evolving, may conflict with each other to complicate compliance efforts, and can result in investigations, proceedings, or actions that lead to significant civil and/or criminal penalties and restrictions on data processing.

Japanese drug regulation

Non-clinical studies and clinical trials

Being a member of the International Conference on Harmonization (ICH), Japan has pharmaceutical regulations fundamentally similar to those of the United States or EU.

Non-clinical studies are performed to demonstrate the health safety of new chemical or biological substances. Non-clinical studies must be conducted in compliance with the principles of Japanese good laboratory practice (GLP) which reflect the Organization for Economic Co-operation and Development requirements. Currently, Japan and EU have a mutual recognition agreement for GLP, and data generated compliant with EU requirements will be accepted by the Japanese authorities. There is no similar agreement with the United States.

Clinical trials of medicinal products in Japan must be conducted in accordance with Japanese regulations based on ICH guidelines governing good clinical practices (GCP). They focus on ethics of the clinical trial and protection of the privacy of the trial subjects. If the sponsor of the clinical trial is not established within Japan, it must appoint an entity within the country to act as its caretaker who should be authorized to act on the sponsor’s behalf. The sponsor must take out a clinical trial insurance policy, and, according to the industry agreement, should put in place a common compensation policy for the injuries from the trial.

Prior to the commencement of human clinical studies, the sponsor must complete evaluation of the safety of the investigative product, and submit a clinical trial notification and the protocol to the authorities in advance, upon agreement of the IRB of the participating institutions. When the authorities do not comment on the notification, the sponsor may proceed with the clinical trial.

Any substantial changes to the trial protocol or other information submitted must be cleared by the IRB and notified to the authorities. Medicines used in clinical trials must be manufactured in accordance with good manufacturing practice (GMP).

Product approval

To market a medicinal product in Japan, we must obtain regulatory approval. To obtain regulatory approval of an investigational medicinal product, we must submit a new drug application. The process for doing this depends, among other things, on the nature of the medicinal product and there are currently a few different pathways for approval. If the product is designed for treating certain “difficult diseases” or those whose patient size is limited, we may be able to obtain designation as an orphan drug product if it demonstrates unique therapeutic value. Approval application for such designated orphan products will be processed on an expedited basis and the authorities’ requirement for clinical data will be much limited. Separately, the latest amendment to the law introduced separate pathways for: (i) truly innovative products with a unique mode of action, and (ii) those which will satisfy unmet medical needs. These products will also be processed on an expedited basis.

The evaluation of applications will be based on an assessment of the risk-benefit balance of the product on the basis of scientific criteria concerning its quality, safety and efficacy. Once the review organization completes its review task, the matter will be considered by the advisory committee of experts, and the government will grant approval upon positive recommendation from the committee.

The volume and quality of the clinical data will be the key determinant of the approval decision. Clinical trial data generated overseas will be accepted as part of the data package consistent with the ICH recommendation. Typically, a limited dose response clinical trial for Japanese subjects is required to ensure that data are extrapolatable for the Japanese population. In a more recent development, the authorities encourage manufacturers to organize an international joint clinical trial with some Japanese participation under a joint protocol, to expedite the clinical trial process. Regulatory approval does not expire.

Licensing requirement

Separate from the approval requirement, it is also mandatory to possess a distribution license of an appropriate class for the manufacturer to commercially distribute the product in Japan. Non-Japanese companies who possess only the product approval may designate an appropriate license holder in Japan to commercially distribute the product, rather than distributing it on its own. The license is valid for 5 years.

Facilities

Our corporate headquarters are located in San Diego, California, where we currently lease approximately 16,153 square feet of office and laboratory space pursuant to a lease that expires April 1, 2022, with the option to holdover the lease month-to-month following such date. We plan to exercise this holdover option until we move into our new corporate headquarters, which is anticipated to occur in the second quarter of 2022. In September 2020, we entered into a lease of approximately 59,407 square feet of office and laboratory space in a facility in San Diego, California that is currently under construction, and scheduled to be completed in the second quarter of 2022. In March 2021, we amended this lease to include an additional 18,421 square feet of office space, resulting in 77,828 square feet of total leased space within this facility. The lease has an initial term of 10.5 years and commenced in August 2021. We believe our existing facilities are adequate to meet our current business requirements for the near term, and that additional space will be available on commercially reasonable terms, if required.

Employees

As of February 28, 2022, we had 123 full-time employees (FTEs), 50 of whom have doctorate degrees. Of our FTEs, 87 are engaged in research and development activities, and 36 are engaged in general and administrative activities. Substantially all of our employees are located in San Diego County, California. None of our employees are represented by labor unions or covered by collective bargaining units. We consider our relationship with our employees to be good.

Our human resources objectives include, as applicable, identifying, recruiting, retaining, incentivizing, and integrating our existing and additional employees. The principal purposes of our equity incentive plans are to attract, retain, and motivate selected employees, consultants, and directors through the granting of stock-based compensation awards.

Corporate Information

We were incorporated under the laws of the State of Delaware on July 2, 2018 as Erasca, Inc. Our principal executive offices are located at 10835 Road to the Cure, Suite 140, San Diego, California 92121, and our telephone number is 858-465-6511. Our website address is www.erasca.com. Our website and the information contained on, or that can be accessed through, the website will not be deemed to be incorporated by reference in, and are not considered part of, this Annual Report on Form 10-K.

In July 2021, we completed our IPO pursuant to which we issued and sold 21,562,500 shares of common stock at a public offering price of $16.00 per share, resulting in net proceeds of $317 million, after deducting underwriting discounts and commissions and other offering costs.

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012. We will remain an emerging growth company until the earlier of: (i) the last day of the fiscal year: (a) following the fifth anniversary of the completion of the IPO, (b) in which we have total annual gross revenue of at least $1.07 billion, or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds $700.0 million as of the prior June 30th, and (ii) the date on which we have issued more than $1.0 billion in nonconvertible debt during the prior three-year period.

Available Information

Our website address is www.erasca.com. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, including exhibits, proxy and information statements and amendments to those reports filed or furnished pursuant to Sections 13(a), 14, and 15(d) of the Exchange Act are available through the “Investors” portion of our website free of charge as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. In addition, our filings with the SEC may be accessed through the SEC’s Interactive Data Electronic Applications system at www.sec.gov. All statements made in any of our securities filings, including all forward-looking statements or information, are made as of the date of the document in which the statement is included, and we do not assume or undertake any obligation to update any of those statements or documents unless we are required to do so by law.

We use the “Investors” portion of our website as a means of disclosing material non-public information and for complying with our disclosure obligations under Regulation FD. Investors should monitor such website, in addition to following our press releases, SEC filings and public conference calls and webcasts. Information relating to our corporate governance is also included on our website. The information in or accessible through the SEC and our website are not incorporated into, and are not considered part of, this Annual Report on Form 10-K.

Item 1A. Risk Factors.

Investing in our common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described below, as well as the other information in this Annual Report on Form 10-K, including our consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K and "Management's Discussion and Analysis of Financial Condition and Results of Operations," before making investment decisions regarding our common stock. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and prospects. In such an event, the market price of our common stock could decline and you may lose all or part of your investment. The risks described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations.

Risks related to our limited operating history, financial position and need for additional capital

We have a limited operating history, have incurred significant operating losses since our inception and expect to incur significant losses for the foreseeable future. We may never generate any revenue or become profitable or, if we achieve profitability, we may not be able to sustain it.

We are a clinical-stage biopharmaceutical company with a limited operating history upon which you can evaluate our business and prospects. We commenced operations in 2018, and to date, we have focused primarily on organizing and staffing our company, business planning, raising capital, identifying, acquiring and in-licensing our product candidates, establishing our intellectual property portfolio, conducting research, preclinical studies and clinical trials, establishing arrangements with third parties for the manufacture of our product candidates and related raw materials, and providing general and administrative support for these operations. Our scientific approach to the discovery and development of product candidates is unproven, and we do not know whether we will be able to develop or obtain regulatory approval for any products of commercial value. In addition, we only have three product candidates, ERAS-007, ERAS-601, and ERAS-801, in early clinical development, and our other product candidates remain in the preclinical or discovery stage. We have not yet completed any later-stage, large-scale or pivotal clinical trials, obtained regulatory approvals, manufactured a commercial-scale product, or arranged for a third party to do so on our behalf, or conducted sales and marketing activities necessary for successful product commercialization. Consequently, any predictions made about our future success or viability may not be as accurate as they could be if we had a history of successfully developing and commercializing biopharmaceutical products.

We have incurred significant operating losses since our inception and expect to incur significant losses for the foreseeable future. We do not have any products approved for sale and have not generated any revenue since our inception. If we are unable to successfully develop and obtain requisite approval for our product candidates, we may never generate any revenue. Our net losses were $122.8 million and $101.7 million for the years ended December 31, 2021 and 2020, respectively. As of December 31, 2021, we had an accumulated deficit of $238.2 million. Substantially all of our losses have resulted from expenses incurred in connection with our research and development programs and from general and administrative costs associated with our operations. All of our product candidates will require substantial additional development time and resources before we would be able to apply for or receive regulatory approvals and begin generating revenue from product sales. We expect to continue to incur losses for the foreseeable future, and we anticipate these losses will increase substantially as we continue our development of, seek regulatory approval for and potentially commercialize any of our product candidates and seek to identify, assess, acquire, in-license or develop additional product candidates.

To become and remain profitable, we must succeed in developing and eventually commercializing products that generate significant revenue. This will require us to be successful in a range of challenging activities, including completing clinical trials and preclinical studies of our product candidates, discovering, acquiring or in-licensing additional product candidates, obtaining regulatory approval for these product candidates, and manufacturing, marketing, and selling any products for which we may obtain regulatory approval. We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, may never generate revenue that is significant enough to achieve profitability. In addition, we have not yet demonstrated an ability to successfully overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields, particularly in the biopharmaceutical industry. Because of the numerous risks and uncertainties associated with biopharmaceutical product development, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable may have an adverse effect on the value of our company and could impair our ability to raise capital, expand our business, maintain our research and development

efforts, diversify our product candidates, or even continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

We will require substantial additional capital to finance our operations, and a failure to obtain this necessary capital when needed on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our development programs, commercialization efforts or other operations.

The development of biopharmaceutical product candidates is capital-intensive. Our operations have consumed substantial amounts of cash since inception. We expect our expenses to increase in connection with our ongoing activities, particularly as we conduct our ongoing and planned clinical trials and preclinical studies, and seek regulatory approval for our current product candidates and any future product candidates we may develop or otherwise acquire. In addition, as our product candidates progress through development and toward commercialization, we will need to make milestone payments to the licensors and other third parties from whom we have in-licensed or acquired our product candidates, including ERAS-007 and ERAS-601. If we obtain regulatory approval for any of our product candidates, we also expect to incur significant commercialization expenses related to product manufacturing, marketing, sales, and distribution. Because the outcome of any clinical trial or preclinical study is highly uncertain, we cannot reasonably estimate the actual amounts necessary to successfully complete the development and commercialization of our product candidates. Furthermore, we expect to incur additional costs associated with operating as a public company. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. If we are unable to raise capital when needed or on attractive terms, we could be forced to delay, reduce or eliminate our research and development programs or any future commercialization efforts.

Based on our current operating plan, we believe that our existing cash, cash equivalents and investments will be sufficient to fund our operations into 2024. We have based these estimates on assumptions that may prove to be wrong, and we could use our capital resources sooner than we currently expect. Our operating plans and other demands on our cash resources may change as a result of many factors currently unknown to us, and we may need to seek additional funds sooner than planned, through public or private equity or debt financings or other capital sources, including potential collaborations, licenses and other similar arrangements. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. Attempting to secure additional financing may divert our management from our day-to-day activities, which may adversely affect our ability to develop our product candidates.

Our future capital requirements will depend on many factors, including, but not limited to:

- the type, number, scope, progress, expansions, results, costs and timing of discovery, preclinical studies and clinical trials of our product candidates which we are pursuing or may choose to pursue in the future, including the costs of any third-party products used in our combination clinical trials that are not covered by such third party or other sources;
- the costs and timing of manufacturing for our product candidates, including commercial manufacturing if any product candidate is approved;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs of obtaining, maintaining and enforcing our patents and other intellectual property rights;
- our efforts to enhance operational systems and hire additional personnel to satisfy our obligations as a public company, including enhanced internal controls over financial reporting;
- the costs associated with hiring additional personnel and consultants as our preclinical and clinical activities increase;
- the timing and amount of the milestone or other payments we must make to the licensors and other third parties from whom we have in-licensed our acquired our product candidates;
- the costs and timing of establishing or securing sales and marketing capabilities if any product candidate is approved;
- our ability to achieve sufficient market acceptance, coverage and adequate reimbursement from third-party payors and adequate market share and revenue for any approved products;
- patients' willingness to pay out-of-pocket for any approved products in the absence of coverage and/or adequate reimbursement from third-party payors;

- any delays and cost increases that result from the COVID-19 pandemic;
- the terms and timing of establishing and maintaining collaborations, licenses and other similar arrangements; and
- costs associated with any products or technologies that we may in-license or acquire.

Conducting clinical trials and preclinical studies and identifying potential product candidates is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain regulatory approval and commercialize our product candidates. In addition, our product candidates, if approved, may not achieve commercial success. Our commercial revenue, if any, will be derived from sales of products that we do not expect to be commercially available for many years, if at all.

Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us on acceptable terms, or at all.

Raising additional capital may cause dilution to our stockholders, restrict our operations or require us to relinquish rights to our technologies or product candidates.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through equity offerings, debt financings, or other capital sources, including potential collaborations, licenses and other similar arrangements. We do not have any committed external source of funds. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. Such restrictions could adversely impact our ability to conduct our operations and execute our business plan.

If we raise additional funds through future collaborations, licenses and other similar arrangements, we may have to relinquish valuable rights to our future revenue streams, research programs or product candidates, or grant licenses on terms that may not be favorable to us and/or that may reduce the value of our common stock. If we are unable to raise additional funds through equity or debt financings or other arrangements when needed or on terms acceptable to us, we would be required to delay, limit, reduce, or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Risks related to the discovery, development and regulatory approval of our product candidates

We are early in our development efforts with three product candidates in early clinical development. All of our other development programs are still in the preclinical or discovery stage. If we are unable to successfully develop, obtain regulatory approval and ultimately commercialize any of our current or future product candidates, or experience significant delays in doing so, our business will be materially harmed.

We are early in our development efforts and have three product candidates, ERAS-007, ERAS-601, and ERAS-801, in early clinical development. All of our other programs are still in the preclinical or discovery stage. Our ability to generate product revenue, which we do not expect will occur for many years, if ever, will depend heavily on the successful development and eventual commercialization of our product candidates. The success of our product candidates will depend on several factors, including the following:

- initiation and successful enrollment of clinical trials and timely completion of clinical trials and preclinical studies with favorable results;
- acceptance of INDs by the FDA, or of similar regulatory submissions by comparable foreign regulatory authorities for the conduct of clinical trials of our product candidates and our proposed design of future clinical trials;
- the frequency and severity of adverse events in clinical trials;
- maintaining and establishing relationships with contract research organizations (CROs) and clinical sites for the clinical development of our product candidates both in the United States and internationally;
- demonstrating the safety, purity, potency and efficacy of our product candidates to the satisfaction of applicable regulatory authorities;

- receipt of marketing approvals from applicable regulatory authorities, including NDAs and BLAs from the FDA and maintaining such approvals;
- making arrangements with our third-party manufacturers for, or establishing, commercial manufacturing capabilities;
- establishing sales, marketing and distribution capabilities and launching commercial sales of our products, if and when approved, whether alone or in collaboration with others;
- establishing and maintaining patent and trade secret protection or regulatory exclusivity for our product candidates;
- maintaining an acceptable safety profile of our products following approval, if any; and
- maintaining and growing an organization of people who can develop and commercialize our products and technology.

If we are unable to develop, obtain regulatory approval for, or, if approved, successfully commercialize our product candidates, we may not be able to generate sufficient revenue to continue our business.

Our scientific approach to the discovery and development of product candidates is unproven, and we do not know whether we will be able to develop any products of commercial value, or if competing approaches will limit the commercial value of our product candidates.

The success of our business depends primarily upon our ability to identify, develop and commercialize products based on our scientific approach, which is singularly focused on shutting down the RAS/MAPK pathway, a novel and unproven approach. While we have had favorable preclinical study results for certain of our development programs, we have not yet succeeded and may not succeed in demonstrating efficacy and safety for any product candidates in clinical trials or in obtaining marketing approvals from the FDA or other regulatory authorities or in commercializing such product candidates. Our lead product candidates, ERAS-007 and ERAS-601, as well as our ERAS-801 product candidate, are in early clinical development and, as an organization, we have not completed any clinical trials for any of our product candidates. In addition, while we believe our pipeline will yield multiple additional INDs for our development programs in the future, we may not be successful in our discovery efforts, and even if successful, we may not be able to submit INDs and have such INDs accepted to enable us to commence clinical trials on the timelines we expect, if at all. Our research methodology and scientific approach may be unsuccessful in identifying additional product candidates, and any product candidates may be shown to have harmful side effects or may have other characteristics that may necessitate additional clinical testing, or make the product candidates unmarketable or unlikely to receive marketing approval. In particular, using multiple agents to shut down multiple nodes of the RAS/MAPK pathway simultaneously is a novel approach that may have unexpected consequences, including adverse events that preclude successful development and approval of our product candidates. Further, because all of our current product candidates and development programs are based on the RAS/MAPK pathway, adverse developments with respect to one of our programs may have a significant adverse impact on the actual or perceived likelihood of success and value of our other programs.

In addition, the biotechnology and biopharmaceutical industries are characterized by rapidly advancing technologies. Our future success will depend in part on our ability to maintain a competitive position with our scientific approach. If we fail to stay at the forefront of technological change in utilizing our approach to create and develop product candidates, we may be unable to compete effectively. Our competitors may render our approach obsolete, or limit the commercial value of our products or product candidates by advances in existing technological approaches or the development of new or different approaches, potentially eliminating the advantages in our drug discovery process that we believe we derive from our approach. By contrast, adverse developments with respect to other companies that attempt to use a similar approach to our approach may adversely impact the actual or perceived value and potential of our product candidates.

If any of these events occur, we may be forced to delay, modify, or abandon our development efforts for a program or programs, which would have a material adverse effect on our business and could potentially cause us to cease operations.

Clinical and preclinical development involves a lengthy and expensive process with an uncertain outcome, and the results of preclinical studies and early clinical trials are not necessarily predictive of future results. Any of our product candidates may not have favorable results in clinical trials, if any, or receive regulatory approval on a timely basis, if at all.

Clinical and preclinical development is expensive and can take many years to complete, and its outcome is inherently uncertain. We cannot guarantee that any clinical trials or preclinical studies will be conducted as planned or completed on schedule, if at all, and failure can occur at any time during the preclinical study or clinical trial process, including due to factors that are beyond our control. Further, we may not be able to meet expected timeframes for data readouts, such as those for our FLAGSHP-1 clinical trial or HERKULES series of clinical trials. Despite promising preclinical or clinical results, any product candidate can unexpectedly fail at any stage of preclinical or clinical development. The historical failure rate for product candidates in our industry is high.

The results from preclinical studies or clinical trials of a product candidate or a competitor's product candidate in the same class may not predict the results of later clinical trials of our product candidate, and interim, topline, or preliminary results of a clinical trial are not necessarily indicative of final results. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy characteristics despite having progressed through preclinical studies and initial clinical trials. For example, while a Phase 1 clinical trial of ERAS-007 was completed prior to our acquisition of this product candidate and while we have completed IND-enabling preclinical studies of ERAS-601 and ERAS-801, we do not know whether they or our other potential product candidates will perform in ongoing or future clinical trials as they have performed in these prior trials and studies. It is not uncommon to observe results in clinical trials that are unexpected based on preclinical studies and early clinical trials, and many product candidates fail in clinical trials despite very promising early results. We are currently conducting IND-enabling preclinical studies for ERAS-3490. If unexpected observations or toxicities are observed in these studies, or in future IND-enabling studies for any of our other development programs, such results may delay or prevent the initiation of clinical trials for such development programs. Moreover, preclinical and clinical data may be susceptible to varying interpretations and analyses. A number of companies in the biopharmaceutical and biotechnology industries have suffered significant setbacks in clinical development even after achieving promising results in earlier studies.

For the foregoing reasons, we cannot be certain that our ongoing and planned clinical trials and preclinical studies will be successful. Any safety concerns observed in any one of our clinical trials in our targeted indications could limit the prospects for regulatory approval of our product candidates in those and other indications, which could have a material adverse effect on our business, financial condition and results of operations.

Any difficulties or delays in the commencement or completion, or termination or suspension, of our current or planned clinical trials could result in increased costs to us, delay or limit our ability to generate revenue and adversely affect our commercial prospects.

Before obtaining marketing approval from regulatory authorities for the sale of our product candidates, we must conduct extensive clinical studies to demonstrate the safety, purity, potency and efficacy of the product candidates in humans. Before we can initiate clinical trials for our preclinical product candidates, we must submit the results of preclinical studies to the FDA or comparable foreign regulatory authorities along with other information, including information about product candidate chemistry, manufacturing and controls and our proposed clinical trial protocol, as part of an IND application or similar regulatory submission. The FDA or comparable foreign regulatory authorities may require us to conduct additional preclinical studies for any product candidate before it allows us to initiate clinical trials under any IND or similar regulatory submission, which may lead to delays and increase the costs of our preclinical development programs. Moreover, even if these trials begin, issues may arise that could cause regulatory authorities to suspend or terminate such clinical trials. Any delays in the commencement or completion of our ongoing and planned clinical trials for our current and any future product candidate could significantly affect our product development timelines and product development costs.

We do not know whether our planned trials will begin on time or if our ongoing or future clinical trials will be completed on schedule, if at all. The commencement, data readouts and completion of clinical trials can be delayed for a number of reasons, including delays related to:

- inability to generate sufficient preclinical, toxicology, or other in vivo or in vitro data to support the initiation or continuation of clinical trial;
- obtaining regulatory authorizations to commence a trial or reaching a consensus with regulatory authorities on trial design;

- the FDA or comparable foreign regulatory authorities disagreeing as to the design or implementation of our clinical studies;
- any failure or delay in reaching an agreement with CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- delays in identifying, recruiting and training suitable clinical investigators;
- obtaining approval from one or more IRBs at clinical trial sites;
- IRBs refusing to approve, suspending or terminating the trial at an investigational site, precluding enrollment of additional subjects, or withdrawing their approval of the trial;
- changes to the clinical trial protocol;
- clinical sites deviating from the trial protocol or dropping out of a trial;
- failure by us or our CROs to perform in accordance with GCP requirements or applicable regulatory guidelines in other countries;
- manufacturing sufficient quantities of product candidates or obtaining sufficient quantities of combination therapies for use in clinical trials;
- subjects failing to enroll or remain in our trials at the rate we expect, or failing to return for post-treatment follow-up, including subjects failing to remain in our trials due to movement restrictions, heath reasons or otherwise resulting from the COVID-19 pandemic;
- patients choosing alternative treatments for the indications for which we are developing our product candidates, or participating in competing clinical trials;
- lack of adequate funding to continue the clinical trials or costs being greater than we anticipate;
- subjects experiencing severe or unexpected drug-related adverse effects;
- occurrence of serious adverse events in trials of the same class of agents conducted by other companies;
- selection of clinical endpoints that require prolonged periods of clinical observation or analysis of the resulting data;
- transfer of manufacturing processes to larger-scale facilities operated by a contract manufacturing organization (CMO), delays or failure by our CMOs or us to make any necessary changes to such manufacturing process, or failure of our CMOs to produce clinical trial materials in accordance with cGMP regulations or other applicable requirements; and
- third parties being unwilling or unable to satisfy their contractual obligations to us in a timely manner.

In addition, disruptions caused by the COVID-19 pandemic may increase the likelihood that we encounter such difficulties or delays in initiating, enrolling, conducting or completing our planned and ongoing clinical trials.

Clinical trials must be conducted in accordance with the FDA and other applicable regulatory authorities' legal requirements, regulations or guidelines, and are subject to oversight by these governmental agencies and Ethics Committees or IRBs at the medical institutions where the clinical trials are conducted. We could also encounter delays if a clinical trial is suspended or terminated by us, by the IRBs of the institutions in which such trials are being conducted, by a Data Safety Monitoring Board for such trial or by the FDA or comparable foreign regulatory authorities. Such authorities may impose such a suspension or termination due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or comparable foreign regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a drug, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. In addition, changes in regulatory requirements and policies may occur, and we may need to amend clinical trial protocols to comply with these changes. Amendments may require us to resubmit our clinical trial protocols to IRBs for reexamination, which may impact the costs, timing or successful completion of a clinical trial.

Further, our conduct of clinical trials in foreign countries presents additional risks that may delay completion of our clinical trials. These risks include the failure of enrolled patients in foreign countries to adhere to clinical protocol as a result of differences in healthcare services or cultural customs, managing additional administrative burdens associated with foreign regulatory schemes, as well as political and economic risks, including war, relevant to such foreign countries.

Moreover, principal investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and receive compensation in connection with such services. Under certain circumstances, we may be required to report some of these relationships to the FDA or comparable foreign regulatory authorities. The FDA or comparable foreign regulatory authority may conclude that a financial relationship between us and a principal investigator has created a conflict of interest or otherwise affected interpretation of the study. The FDA or comparable foreign regulatory authority may therefore question the integrity of the data generated at the applicable clinical trial site and the utility of the clinical trial itself may be jeopardized. This could result in a delay in approval, or rejection, of our marketing applications by the FDA or comparable foreign regulatory authority, as the case may be, and may ultimately lead to the denial of marketing approval of one or more of our product candidates.

In addition, many of the factors that cause, or lead to, the termination or suspension of, or a delay in the commencement or completion of, clinical trials may also ultimately lead to the denial of regulatory approval of a product candidate. We may make formulation or manufacturing changes to our product candidates, in which case we may need to conduct additional preclinical studies to bridge our modified product candidates to earlier versions. Any delays to our clinical trials that occur as a result could shorten any period during which we may have the exclusive right to commercialize our product candidates and our competitors may be able to bring products to market before we do, and the commercial viability of our product candidates could be significantly reduced. Any of these occurrences may harm our business, financial condition and prospects significantly.

We may find it difficult to enroll patients in our clinical trials. If we encounter difficulties enrolling subjects in our clinical trials, our clinical development activities could be delayed or otherwise adversely affected.

We may not be able to initiate or continue clinical trials for our product candidates if we are unable to identify and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or similar regulatory authorities outside the United States. Subject enrollment, a significant factor in the timeline of clinical trials, is affected by many factors including the size and characteristics of the patient population, the proximity of patients to clinical sites, the eligibility and exclusion criteria for the trial, the design of the clinical trial, the risk that enrolled patients will not complete a clinical trial, our ability to recruit clinical trial investigators with the appropriate competencies and experience, competing clinical trials and clinicians' and patients' perceptions as to the potential advantages and risks of the product candidate being studied in relation to other available therapies, including any new products that may be approved for the indications we are investigating as well as any product candidates under development. We will be required to identify and enroll a sufficient number of subjects for each of our clinical trials. Potential subjects for any planned clinical trials may not be adequately diagnosed or identified with the diseases which we are targeting or may not meet the entry criteria for such trials. In particular, because certain of our product candidates are focused on patients with specific molecular alterations within the RAS/MAPK pathway, our ability to enroll eligible patients may be limited or may result in slower enrollment than we anticipate. We also may encounter difficulties in identifying and enrolling patients with a stage of disease appropriate for our planned clinical trials and monitoring such patients adequately during and after treatment. Additionally, other pharmaceutical companies targeting these same types of cancer are recruiting clinical trial patients from these patient populations, which may make it more difficult to fully enroll our clinical trials. We may not be able to initiate or continue clinical trials if we are unable to locate a sufficient number of eligible subjects to participate in the clinical trials required by the FDA or comparable foreign regulatory authorities. In addition, the process of finding and diagnosing patients may prove costly. The timing of our clinical trials depends, in part, on the speed at which we can recruit patients to participate in our trials, as well as completion of required follow-up periods. The eligibility criteria of our clinical trials, once established, will further limit the pool of available trial participants. If patients are unwilling to participate in our trials for any reason, including the existence of concurrent clinical trials for similar patient populations, the availability of approved therapies or as a result of the COVID-19 pandemic, or we otherwise have difficulty enrolling a sufficient number of patients, the timeline for recruiting subjects, conducting studies and obtaining regulatory approval of our product candidates may be delayed. Additionally, because our clinical trials are in patients with relapsed/refractory cancer, the patients are typically in the late stages of their disease and may experience disease progression independent from our product candidates, making them unevaluable for purposes of the clinical trial and requiring additional patient enrollment. Our inability to enroll a sufficient number of subjects for any of our future clinical trials would result in significant delays or may require us to abandon one or more clinical trials altogether. In addition, we expect to rely on CROs and clinical trial sites to ensure proper and timely conduct of our future clinical trials and, while we have entered into agreements governing their services, we have limited influence over their actual performance. We cannot assure you that our

assumptions used in determining expected clinical trial timelines are correct or that we will not experience delays in enrollment, which would result in the delay of completion of such trials beyond our expected timelines.

Use of our product candidates could be associated with side effects, adverse events or other properties or safety risks, which could delay or preclude approval, cause us to suspend or discontinue clinical trials, abandon a product candidate, limit the commercial profile of an approved label or result in other significant negative consequences that could severely harm our business, prospects, operating results and financial condition.

As is the case with oncology drugs generally, it is likely that there may be side effects and adverse events associated with our product candidates' use. Results of our clinical trials could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics. Undesirable side effects caused by our product candidates when used alone or in combination with other approved or investigational drugs or biologics could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label, or lead to the delay or denial of regulatory approval by the FDA or comparable foreign regulatory authorities. The drug-related side effects could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may harm our business, financial condition and prospects significantly.

Moreover, if our product candidates are associated with undesirable side effects in clinical trials or have characteristics that are unexpected, we may elect to abandon their development or limit their development to more narrow uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective, which may limit the commercial expectations for the product candidate if approved. For example, ophthalmic toxicities have been observed during treatment with MEK-targeted agents and also occur with ERK inhibitors, and reversible retinopathy is a well-known MEK/ERK class effect. Skin toxicities have also been noted as a class effect of inhibitors of RAF, MEK, and ERK. Both skin and ophthalmic treatment-related adverse events were observed in the completed Phase 1 trial of ERAS-007, consistent with these class effects. Gastrointestinal toxicities are associated with the use of MEK/ERK inhibitors and SHP2 inhibitors, whereas hematological toxicities are more commonly associated with SHP2 inhibitors. Furthermore, skin and gastrointestinal side effects represent overlapping toxicities of ERK inhibitors and SHP2 inhibitors with EGFR inhibitors and BRAF inhibitors. Therefore, unacceptable enhancement of certain toxicities may be seen when our product candidates are combined with standard of care therapies, or when they are used as single agents. We may also be required to modify our development and clinical trial plans based on findings in our ongoing clinical trials. Many compounds that initially showed promise in early-stage testing for treating cancer have later been found to cause side effects that prevented further development of the compound. In addition, regulatory authorities may draw different conclusions or require additional testing to confirm these determinations.

It is possible that as we test our product candidates in larger, longer and more extensive clinical trials, including with different dosing regimens, or as the use of these product candidates becomes more widespread if they receive regulatory approval, illnesses, injuries, discomforts and other adverse events that were observed in earlier trials, as well as conditions that did not occur or went undetected in previous trials, may be reported by subjects. If such side effects become known later in development or upon approval, if any, such findings may harm our business, financial condition and prospects significantly.

In addition, we plan to study our product candidates in combination with other therapies, including those that are also known to act on the RAS/MAPK pathway, which may exacerbate adverse events associated with such product candidates. Patients treated with our product candidates may also be undergoing surgical, radiation and chemotherapy treatments, which can cause side effects or adverse events that are unrelated to our product candidates but may still impact the success of our clinical trials. The inclusion of critically ill patients in our clinical trials may result in deaths or other adverse medical events due to other therapies or medications that such patients may be using or due to the gravity of such patients' illnesses. For example, it is expected that some of the patients enrolled in our clinical trials will die or experience major clinical events either during the course of our clinical trials or after participating in such trials, which has occurred in the past.

In addition, if one or more of our product candidates receives marketing approval, and we or others later identify undesirable side effects caused by such product, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw, suspend or limit approvals of such product, or seek an injunction against its manufacture or distribution;
- we may be required to recall a product or change the way such product is administered to patients;

- regulatory authorities may require additional warnings on the label, such as a “black box” warning or a contraindication;
- we may be required to implement a REMS or create a medication guide outlining the risks of such side effects for distribution to patients;
- we may be required to change the way a product is distributed or administered, conduct additional clinical trials or change the labeling of a product or be required to conduct additional post-marketing studies or surveillance;
- we could be sued and held liable for harm caused to patients;
- sales of the product may decrease significantly or the product could become less competitive; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if approved, and could significantly harm our business, results of operations and prospects.

As an organization, we have never completed any clinical trials and may be unable to do so for any of our product candidates.

We are early in our development efforts for our product candidates, have never completed any clinical trials and we will need to successfully complete our Phase 1 clinical trials and later-stage and pivotal clinical trials in order to obtain FDA or comparable foreign regulatory approval to market our product candidates. Carrying out later-stage clinical trials and the submission of a successful NDA or BLA or similar regulatory submissions to comparable foreign regulatory authorities is a complicated process. A Phase 1 clinical trial for ERAS-007 was completed prior to our acquisition of this product candidate, and we are currently conducting our first Phase 1 clinical trials for ERAS-601 and ERAS-801, and multiple Phase 1b/2 trials for ERAS-007. We are only beginning to conduct clinical trials for our product candidates, and we have limited experience as a company in preparing, submitting and prosecuting regulatory filings and have not previously submitted an NDA, BLA or other comparable foreign regulatory submission for any product candidate. We are also conducting and plan to conduct a number of clinical trials for multiple product candidates in parallel over the next several years, which may be a difficult process to manage with our limited resources and which may divert the attention of management. In addition, we have had limited interactions with the FDA or other comparable foreign regulatory authorities, and cannot be certain how many additional clinical trials of our product candidates will be required or how such trials should be designed. Consequently, we may be unable to successfully and efficiently execute and complete necessary clinical trials in a way that leads to regulatory submission and approval of any of our product candidates. We may require more time and incur greater costs than our competitors and may not succeed in obtaining regulatory approvals of product candidates that we develop. Failure to commence or complete, or delays in, our planned clinical trials could prevent us from or delay us in submitting marketing applications, including NDAs and BLAs, and commercializing our product candidates.

We intend to develop our product candidates in combination with other therapies, which exposes us to additional risks.

We intend to develop our current and any future product candidates for use in combination with one or more currently approved cancer therapies. Even if any product candidate we develop was to receive marketing approval or be commercialized for use in combination with other existing therapies, we would continue to bear the risks that the FDA or similar foreign regulatory authorities could revoke approval of the therapy used in combination with our product candidate or that safety, efficacy, manufacturing or supply issues could arise with these existing therapies. Combination therapies are commonly used for the treatment of cancer, and we would be subject to similar risks if we develop any of our product candidates for use in combination with other drugs or biologics or for indications other than cancer. Developing combination therapies using approved therapeutics, as we plan to do for our product candidates, also exposes us to additional clinical risks, such as the requirement that we demonstrate the safety and efficacy of each active component of any combination regimen we may develop.

In addition, we are also evaluating the combination of ERAS-007 and ERAS-601 with each other, and may also evaluate our product candidates in combination with one or more other cancer therapies that have not yet been approved for marketing by the FDA or similar foreign regulatory authorities. We may not be able to market and sell any product candidate we develop in combination with any such unapproved cancer therapies that do not ultimately obtain marketing approval.

If the FDA or similar foreign regulatory authorities do not approve these other combination agents or revoke their approval of, or if safety, efficacy, manufacturing, or supply issues arise with the drugs or biologics we choose to evaluate in combination with our product candidates, we may be unable to obtain approval of or market our product candidates for combination therapy regimens.

Additionally, if the third-party providers of therapies or therapies in development used in combination with our product candidates are unable to produce sufficient quantities for clinical trials or for commercialization of our product candidates, or if the cost of combination therapies are prohibitive, our development and commercialization efforts would be impaired, which would have an adverse effect on our business, financial condition, results of operations and growth prospects.

Because we have a number of product candidates and development programs in our pipeline, we may expend our limited resources to pursue a particular product candidate and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we focus on specific product candidates, development programs and indications. We are also conducting and plan to conduct several clinical trials for multiple product candidates in parallel over the next several years, which may make our decision as to which product candidates to focus on more difficult. As a result, we may forgo or delay pursuit of opportunities with other product candidates that could have had greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable product candidates. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaborations, licenses and other similar arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

Additionally, we may pursue additional in-licenses or acquisitions of development-stage assets or programs, which entails additional risk to us. Identifying, selecting and acquiring promising product candidates requires substantial technical, financial and human resources expertise. Efforts to do so may not result in the actual acquisition or license of a particular product candidate, potentially resulting in a diversion of our management's time and the expenditure of our resources with no resulting benefit. For example, if we are unable to identify programs that ultimately result in approved products, we may spend material amounts of our capital and other resources evaluating, acquiring and developing products that ultimately do not provide a return on our investment.

We may not be able to obtain or maintain orphan designations for any of our product candidates, and we may be unable to maintain the benefits associated with orphan drug designation, including the potential for market exclusivity.

We may seek orphan designation for some of our product candidates; however, we may never receive such designations. Under the Orphan Drug Act of 1983, the FDA may designate a product as an orphan product candidate if it is intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals in the United States, or a patient population of greater than 200,000 individuals in the United States, but for which there is no reasonable expectation that the cost of developing the drug or biologic will be recovered from sales in the United States. Orphan drug designation must be requested before submitting an NDA or BLA.

In the United States, orphan designation entitles a party to financial incentives such as opportunities for grant funding toward clinical trial costs, tax advantages and user-fee waivers. In addition, if a product candidate that has orphan designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusivity, which means that the FDA may not approve any other applications, including an NDA or BLA, to market the same product for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity or where the manufacturer is unable to assure sufficient product quantity.

Even if we obtain orphan drug exclusivity for a product, such exclusivity may not effectively protect the product from competition because different drugs and biologics can be approved for the same condition. Even after an orphan drug or biologic is approved, the FDA or comparable foreign regulatory authority can subsequently approve the same drug or biologic for the same condition if such regulatory authority concludes that the later drug or biologic is clinically superior because it is shown to be safer, more effective or makes a major contribution to patient care. Orphan drug exclusivity may also be lost if the FDA later determines that the initial request for designation was materially defective, or if the sponsor

seeks approval for an indication broader than the designated indication. In addition, orphan drug exclusivity does not prevent the FDA from approving competing drugs or biologics for the same or similar indication containing a different active ingredient. In addition, if a subsequent drug or biologic is approved for marketing for the same or a similar indication as any of our product candidates that receive marketing approval, we may face increased competition and lose market share regardless of orphan drug exclusivity. Orphan designation neither shortens the development time or regulatory review time of a drug nor gives the drug any advantage in the regulatory review or approval process. Where applicable, we also may seek comparable designations for our product candidates in other jurisdictions, which may have differing requirements and would also include risks of not being granted and/or not being effective in protecting the product from competition.

We are currently conducting and may in the future conduct certain of our clinical trials for our product candidates outside of the United States. However, the FDA and other foreign equivalents may not accept data from such trials, in which case our development plans will be delayed, which could materially harm our business.

We are currently conducting and may in the future conduct one or more of our clinical trials for our product candidates outside the United States. The acceptance of data from clinical trials conducted outside the United States or another jurisdiction by the FDA or comparable foreign regulatory authority may be subject to certain conditions or may not be accepted at all. In cases where data from foreign clinical trials are intended to serve as the sole basis for marketing approval in the United States, the FDA will generally not approve the application on the basis of foreign data alone unless (i) the data are applicable to the US population and US medical practice; (ii) the trials were performed by clinical investigators of recognized competence and pursuant to GCP regulations; and (iii) the data may be considered valid without the need for an on-site inspection by the FDA, or if the FDA considers such inspection to be necessary, the FDA is able to validate the data through an on-site inspection or other appropriate means. In addition, even where the foreign clinical trial data are not intended to serve as the sole basis for approval, the FDA will not accept the data as support for an application for marketing approval unless the trial is well-designed and well-conducted in accordance with GCP requirements and the FDA is able to validate the data from the trial through an onsite inspection if deemed necessary. Many foreign regulatory authorities have similar approval requirements. In addition, such foreign trials would be subject to the applicable local laws of the foreign jurisdictions where the trials are conducted. There can be no assurance that the FDA or any comparable foreign regulatory authority will accept data from trials conducted outside of the United States or the applicable jurisdiction. If the FDA or any comparable foreign regulatory authority does not accept such data, it would result in the need for additional trials, which could be costly and time-consuming, and which may result in current or future product candidates that we may develop not receiving approval for commercialization in the applicable jurisdiction.

Conducting clinical trials outside the United States also exposes us to additional risks, including risks associated with:

- additional foreign regulatory requirements;
- foreign exchange fluctuations;
- compliance with foreign manufacturing, customs, shipment and storage requirements;
- inconsistent standards for reporting and evaluating clinical data and adverse events;
- cultural differences in medical practice and clinical research; and
- diminished protection of intellectual property in some countries.

Interim, topline and preliminary data from our clinical trials and preclinical studies that we announce or publish from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publicly disclose interim, top-line, or preliminary data from our clinical trials and preclinical studies, which is based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change following a full analyses of all data related to the particular trial. We also make assumptions, estimations, calculations and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the interim, top-line, or preliminary results that we report may differ from future results of the same trials, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. Top-line and preliminary data also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, top-line and preliminary data should be viewed with caution until the final data are available. We may also disclose interim data from our clinical trials.

Interim data from clinical trials that we may complete are also subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Adverse differences between interim, top-line, or preliminary data and final data could significantly harm our business prospects.

Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimates, calculations, conclusions or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability or commercialization of the particular product candidate or product and our business in general. In addition, the information we choose to publicly disclose regarding a particular study or clinical trial is based on what is typically extensive information, and you or others may not agree with what we determine is the material or otherwise appropriate information to include in our disclosure, and any information we determine not to disclose may ultimately be deemed significant with respect to future decisions, conclusions, views, activities or otherwise regarding a particular drug, product candidate or our business. If the interim, top-line, or preliminary data that we report differ from actual results, or if others, including regulatory authorities, disagree with the conclusions reached, our ability to obtain approval for and commercialize our product candidates, our business, operating results, prospects or financial condition may be harmed.

We may attempt to secure approval from the FDA or comparable foreign regulatory authorities through the use of accelerated approval pathways. If we are unable to obtain such approval, we may be required to conduct additional clinical trials beyond those that we contemplate, which could increase the expense of obtaining, and delay the receipt of, necessary marketing approvals. Even if we receive accelerated approval from the FDA (or a similar expedited approval mechanism from a comparable foreign regulatory authority, such as conditional marketing authorization in the EU), if our confirmatory trials do not verify clinical benefit, or if we do not comply with rigorous post-marketing requirements, the FDA (or comparable foreign regulatory authority) may seek to withdraw accelerated approval.

We may in the future seek an expedited approval for one or more of our product candidates. Under the accelerated approval program, the FDA or comparable foreign regulatory authority may grant accelerated or conditional approval to a product candidate designed to treat a serious or life-threatening condition that provides meaningful therapeutic benefit over available therapies upon a determination that the product candidate has an effect on a surrogate endpoint or intermediate clinical endpoint that is reasonably likely to predict clinical benefit. The health authorities assess the definition of available therapy at the time of regulatory decision-making; it is possible that the standard of care may evolve during a drug's development, for example, due to a new therapy receiving full approval for that indication. In this situation, an expedited approval, such as accelerated or conditional approval, would be assessed for benefit over the newly approved treatment which could require a better benefit/risk ratio for approval, compared to the previous standard of care. The FDA considers a clinical benefit to be a positive therapeutic effect that is clinically meaningful in the context of a given disease, such as irreversible morbidity or mortality. For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign, or other measure that is thought to predict clinical benefit, but is not itself a measure of clinical benefit. An intermediate clinical endpoint is a clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit. The accelerated approval pathway may be used in cases in which the advantage of a new drug or biologic over available therapy may not be a direct therapeutic advantage, but is a clinically important improvement from a patient and public health perspective. If granted, accelerated approval and conditional approval are contingent on the sponsor's agreement to conduct, in a diligent manner, additional post- approval confirmatory studies to verify and describe the drug's clinical benefit. If such post-approval studies fail to confirm the drug or biologic's clinical benefit or are not completed in a timely manner, the FDA or comparable foreign regulatory authority may withdraw its approval of the drug or biologic.

Prior to seeking approval for any of our product candidates, we intend to seek feedback from the applicable health authorities, such as the FDA and will otherwise evaluate our ability to seek and receive accelerated or conditional approval. There can be no assurance that after our evaluation of the feedback and other factors we will decide to pursue or submit an NDA, BLA, or comparable foreign marketing application for accelerated approval or any other form of expedited development, review or approval mechanism.

Similarly, there can be no assurance that after subsequent health authority feedback we will continue to pursue or apply for accelerated approval or any other form of expedited development, review or approval mechanism, even if we initially decide to do so. Furthermore, if we decide to submit an application for accelerated or conditional approval, or receive an expedited regulatory designation (e.g., breakthrough therapy designation) for our product candidates, there can be no assurance that such submission or application will be accepted or that any expedited development, review or approval will be granted on a timely basis, or at all. The FDA or other comparable foreign regulatory authority could also require us to

conduct further studies prior to considering our application or granting approval of any type. A failure to obtain accelerated approval or any other form of expedited development, review or approval for our product candidate would result in a longer time period to commercialization of such product candidate, if any, could increase the cost of development of such product candidate and could harm our competitive position in the marketplace.

Disruptions at the FDA and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire, retain or deploy key leadership and other personnel, or otherwise prevent new or modified products from being developed, approved or commercialized in a timely manner or at all, which could negatively impact our business.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, statutory, regulatory and policy changes, the FDA's ability to hire and retain key personnel and accept the payment of user fees, and other events that may otherwise affect the FDA's ability to perform routine functions. Average review times at the FDA have fluctuated in recent years. In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable. Disruptions at the FDA and other agencies may also slow the time necessary for new drugs and biologics or modifications to approved drugs and biologics to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, the US government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical FDA employees and stop critical activities.

Separately, in response to the COVID-19 pandemic, in March 2020, the FDA announced its intention to postpone most inspections of foreign manufacturing facilities, and on March 18, 2020, the FDA temporarily postponed routine surveillance inspections of domestic manufacturing facilities. Subsequently, in July 2020, the FDA resumed certain on-site inspections of domestic manufacturing facilities subject to a risk-based prioritization system. The FDA utilized this risk-based assessment system to assist in determining when and where it was safest to conduct prioritized domestic inspections. Additionally, on April 15, 2021, the FDA issued a guidance document in which the FDA described its plans to conduct voluntary remote interactive evaluations of certain drug manufacturing facilities and clinical research sites, among other facilities. According to the guidance, the FDA may request such remote interactive evaluations where the FDA determines that remote evaluation would be appropriate based on mission needs and travel limitations. In May 2021, the FDA outlined a detailed plan to move toward a more consistent state of inspectional operations, and in July 2021, the FDA resumed standard inspectional operations of domestic facilities and was continuing to maintain this level of operation as of September 2021. More recently, the FDA has continued to monitor and implement changes to its inspectional activities to ensure the safety of its employees and those of the firms it regulates as it adapts to the evolving COVID-19 pandemic. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic. If a prolonged government shutdown occurs, or if global health concerns continue to prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

If we are required by the FDA* or comparable foreign regulatory authority *to obtain approval of a companion diagnostic test in connection with approval of any of our product candidates, and we do not obtain or face delays in obtaining FDA or foreign approval of a diagnostic device, we may not be able to commercialize such product candidate and our ability to generate revenue will be materially impaired.

If safe and effective use of any of our product candidates depends on an *in vitro* diagnostic that is not otherwise commercially available, then the FDA generally may require approval or clearance of that diagnostic, known as a companion diagnostic, at the same time that the FDA approves our product candidates, if at all. According to FDA guidance, if the FDA determines that a companion diagnostic device is essential to the safe and effective use of a novel therapeutic product or indication, the FDA generally will not approve the therapeutic product or new therapeutic product indication if the companion diagnostic is not also approved or cleared for that indication. If a satisfactory companion diagnostic is not commercially available, we may be required to develop or obtain one that would be subject to regulatory approval requirements. The process of obtaining or creating such diagnostics is time-consuming and costly.

Companion diagnostics are developed in conjunction with clinical programs for the associated product and are subject to regulation as medical devices by the FDA and comparable regulatory authorities, and, to date, the FDA has generally required premarket approval of companion diagnostics for cancer therapies. The approval of a companion diagnostic as part of the therapeutic product's labeling limits the use of the therapeutic product to only those patients who express the specific genetic alteration that the companion diagnostic was developed to detect.

If the FDA or a comparable regulatory authority requires approval of a companion diagnostic for any of our product candidates, whether before, simultaneously with, or after such candidate obtains marketing approval, if ever, we, and/or future collaborators, may encounter difficulties in developing and obtaining approval for such companion diagnostic. Any delay or failure by us or third-party collaborators to develop or obtain regulatory approval of a companion diagnostic could delay or prevent approval or continued marketing of such product candidate. We may also experience delays in developing a sustainable, reproducible and scalable manufacturing process for the companion diagnostic or in transferring that process to commercial partners or negotiating insurance reimbursement plans, all of which may prevent us from completing our clinical trials or commercializing our product candidate, if approved, on a timely or profitable basis, if at all.

Risks related to our reliance on third parties

We rely on third parties to conduct our clinical trials and preclinical studies. If these third parties do not successfully carry out their contractual duties, comply with applicable regulatory requirements or meet expected deadlines, our development programs and our ability to seek or obtain regulatory approval for or commercialize our product candidates may be delayed.

We are dependent on third parties to conduct our clinical trials and preclinical studies. Specifically, we have used and relied on, and intend to continue to use and rely on, medical institutions, clinical investigators, CROs and consultants to conduct our preclinical studies and clinical trials in accordance with our clinical protocols and regulatory requirements. These CROs, investigators and other third parties play a significant role in the conduct and timing of these trials and subsequent collection and analysis of data. While we have and will have agreements governing the activities of our third-party contractors, we have limited influence over their actual performance. Nevertheless, we are responsible for ensuring that each of our clinical trials is conducted in accordance with the applicable protocol and legal, regulatory and scientific standards, and our reliance on our CROs and other third parties does not relieve us of our regulatory responsibilities. We and our CROs are required to comply with GCP requirements, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for all of our product candidates in clinical development. Regulatory authorities enforce these GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of our CROs or trial sites fail to comply with applicable GCPs, the clinical data generated in our clinical trials may be deemed unreliable, and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. In addition, our clinical trials must be conducted with product candidates and products produced under cGMP regulations. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process.

There is no guarantee that any of our CROs, investigators or other third parties will devote adequate time and resources to such trials or studies or perform as contractually required. If any of these third parties fail to meet expected deadlines, adhere to our clinical protocols or meet regulatory requirements, or otherwise performs in a substandard manner, our clinical trials may be extended, delayed or terminated. In addition, many of the third parties with whom we contract may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other development activities that could harm our competitive position. In addition, principal investigators for our clinical trials are expected to serve as scientific advisors or consultants to us from time to time and may receive cash or equity compensation in connection with such services. If these relationships and any related compensation result in perceived or actual conflicts of interest, or the FDA concludes that the financial relationship may have affected the interpretation of the study, the integrity of the data generated at the applicable clinical trial site may be questioned and the utility of the clinical trial itself may be jeopardized, which could result in the delay or rejection by the FDA of any NDA or BLA we submit. Any such delay or rejection could prevent us from commercializing our product candidates.

Our CROs have the right to terminate their agreements with us in the event of an uncured material breach. In addition, some of our CROs have an ability to terminate their respective agreements with us if it can be reasonably demonstrated that the safety of the subjects participating in our clinical trials warrants such termination, if we make a general assignment for the benefit of our creditors or if we are liquidated. If any of our relationships with these third parties terminate, we may not be able to enter into arrangements with alternative third parties on commercially reasonable terms or at all. Switching or adding additional CROs, investigators and other third parties involves additional cost and requires our management’s time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines. Though we carefully manage our relationships with our CROs, investigators and other third parties, there can be no assurance that we will not encounter challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects.

We rely on third parties for the manufacture of our product candidates for clinical and preclinical development and expect to continue to do so for the foreseeable future. This reliance on third parties increases the risk that we will not have sufficient quantities of our product candidates or products or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.

We do not own or operate manufacturing facilities and have no plans to develop our own clinical or commercial-scale manufacturing capabilities. We rely, and expect to continue to rely, on third parties for the manufacture of our product candidates and related raw materials for clinical and preclinical development, as well as for commercial manufacture if any of our product candidates receive marketing approval. The facilities used by third-party manufacturers to manufacture our product candidates must be approved by the FDA and any comparable foreign regulatory authority pursuant to inspections that will be conducted after we submit an NDA or BLA to the FDA or any comparable submission to a foreign regulatory authority. We do not control the manufacturing process of, and are completely dependent on, third-party manufacturers for compliance with cGMP requirements for manufacture of product candidates and products. If these third-party manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or any comparable foreign regulatory authority, they will not be able to secure and/or maintain regulatory approval for their manufacturing facilities. In addition, we have no control over the ability of third-party manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or any comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates, if approved. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including clinical holds, fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, seizures or recalls of product candidates or products, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our products.

Our or a third party's failure to execute on our manufacturing requirements on commercially reasonable terms and in compliance with cGMP or other regulatory requirements could adversely affect our business in a number of ways, including:

- an inability to initiate clinical trials of our product candidates under development;
- delay in submitting regulatory applications, or receiving marketing approvals, for our product candidates;
- additional inspections by regulatory authorities of third-party manufacturing facilities or our manufacturing facilities;
- requirements to cease development or to recall batches of our product candidates; and
- in the event of approval to market and commercialize a product, an inability to meet commercial demands for such product.

In addition, we do not have any long-term commitments or supply agreements with our third-party manufacturers. We may be unable to establish any supply agreements with our third-party manufacturers or to do so on acceptable terms, which increases the risk of timely obtaining sufficient quantities of our product candidates or products or such quantities at an acceptable cost. Even if we are able to establish agreements with third-party manufacturers, reliance on third-party manufacturers entails additional risks, including:

- failure of third-party manufacturers to comply with regulatory requirements and maintain quality assurance;
- breach of the manufacturing agreement by the third party;
- failure to manufacture our product according to our specifications;
- failure to manufacture our product according to our schedule or at all;
- misappropriation of our proprietary information, including our trade secrets and know-how; and
- termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us.

Our product candidates and any products that we may develop may compete with other product candidates and products for access to manufacturing facilities. There are a limited number of manufacturers that operate under cGMP regulations and that might be capable of manufacturing for us, in particular due to the high potency of our product candidates.

Any performance failure on the part of our existing or future manufacturers could delay clinical development or marketing approval, and any related remedial measures may be costly or time-consuming to implement. We do not currently have arrangements in place for redundant supply or a second source for all required raw materials used in the manufacture of our product candidates. If our existing or future third-party manufacturers cannot perform as agreed, we may be required to replace such manufacturers and we may be unable to replace them on a timely basis or at all. In particular, any replacement of our manufacturers could require significant effort and expertise because there may be a limited number of qualified replacements. In some cases, the technical skills or technology required to manufacture our product candidates may be unique or proprietary to the original manufacturer and we may have difficulty transferring such skills or technology to another third-party and a feasible alternative may not exist. In addition, certain of our product candidates and our own proprietary methods have never been produced or implemented outside of our company, and we may therefore experience delays to our development programs if and when we attempt to establish new third-party manufacturing arrangements for these product candidates or methods.

Our current and anticipated future dependence upon others for the manufacture of our product candidates or products may adversely affect our future profit margins and our ability to commercialize any products that receive marketing approval on a timely and competitive basis.

Our reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

Because we currently rely on third parties to manufacture our product candidates and to perform quality testing, we must, at times, share our proprietary technology and confidential information, including trade secrets, with them. We seek to protect our proprietary technology, in part, by entering into confidentiality agreements, and, if applicable, material transfer agreements, collaborative research agreements, consulting agreements or other similar agreements with our collaborators, advisors, employees and consultants prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information. Despite the contractual provisions employed when working with third parties, the need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors, are intentionally or inadvertently incorporated into the technology of others or are disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our know-how and trade secrets and despite our efforts to protect our trade secrets, a competitor’s discovery of our proprietary technology and confidential information or other unauthorized use or disclosure would impair our competitive position and may have a material adverse effect on our business, financial condition, results of operations and prospects.

We may seek to enter into collaborations, licenses and other similar arrangements and may not be successful in doing so, and even if we are, we may relinquish valuable rights and may not realize the benefits of such relationships.

We may seek to enter into collaborations, joint ventures, licenses and other similar arrangements for the development or commercialization of our product candidates, due to capital costs required to develop or commercialize the product candidate or manufacturing constraints. For example, we are collaborating with ELS on large molecule capabilities. Such collaborative discovery efforts may not yield additional development or product candidates for our pipeline. We may not be successful in our efforts to establish or maintain such collaborations for our product candidates because our research and development pipeline may be insufficient, our product candidates may be deemed to be at too early of a stage of development for collaborative effort or third parties may not view our product candidates as having the requisite potential to demonstrate safety and efficacy or significant commercial opportunity. In addition, we face significant competition in seeking appropriate strategic partners, and the negotiation process can be time-consuming and complex. We may have to relinquish valuable rights to our future revenue streams, research programs or product candidates, or grant licenses on terms that may not be favorable to us, as part of any such arrangement, and such arrangements may restrict us from entering into additional agreements with other potential collaborators. We cannot be certain that, following a collaboration, license or strategic transaction, we will achieve an economic benefit that justifies such transaction.

Even if we are successful in our efforts to establish such collaborations, the terms that we agree upon may not be favorable to us, and we may not be able to maintain such collaborations if, for example, the development or approval of a product candidate is delayed, the safety of a product candidate is questioned or the sales of an approved product candidate are unsatisfactory.

In addition, any potential future collaborations may be terminable by our strategic partners, and we may not be able to adequately protect our rights under these agreements. Furthermore, strategic partners may negotiate for certain rights to control decisions regarding the development and commercialization of our product candidates, if approved, and may not conduct those activities in the same manner as we do. Any termination of collaborations we enter into in the future, or any delay in entering into collaborations related to our product candidates, could delay the development and commercialization of our product candidates and reduce their competitiveness if they reach the market, which could have a material adverse effect on our business, financial condition and results of operations.

Risks related to commercialization of our product candidates

Even if we receive regulatory approval for any product candidate, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense.

Any regulatory approvals that we may receive for our product candidates will require the submission of reports to regulatory authorities and surveillance to monitor the safety and efficacy of the product, may contain significant limitations related to use restrictions for specified age groups, warnings, precautions or contraindications, and may include burdensome post-approval study or risk management requirements. For example, the FDA may require a REMS as a condition of approval of our product candidates, which could include requirements for a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA or a comparable foreign regulatory authority approves our product candidates, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export and recordkeeping for our products will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMP and GCP requirements for any clinical trials that we conduct post-approval. Manufacturers of approved products and their facilities are subject to continual review and periodic, unannounced inspections by the FDA and other regulatory authorities for compliance with cGMP regulations and standards. Later discovery of previously unknown problems with our products, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on the marketing or manufacturing of our products, withdrawal of the product from the market or voluntary or mandatory product recalls;
- restrictions on product distribution or use, or requirements to conduct post-marketing studies or clinical trials;
- fines, restitutions, disgorgement of profits or revenue, warning letters, untitled letters or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications filed by us or suspension or revocation of approvals;
- product seizure or detention, or refusal to permit the import or export of our products; and
- injunctions or the imposition of civil or criminal penalties.

The occurrence of any event or penalty described above may inhibit our ability to commercialize our product candidates and generate revenue and could require us to expend significant time and resources in response and could generate negative publicity.

The FDA's and other regulatory authorities' policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. We also cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may be subject to enforcement action and we may not achieve or sustain profitability.

The FDA and other regulatory agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses.

If any of our product candidates are approved and we are found to have improperly promoted off-label uses of those products, we may become subject to significant liability. The FDA and other regulatory agencies strictly regulate the promotional claims that may be made about prescription products, such as our product candidates, if approved. In particular, a product may not be promoted for uses that are not approved by the FDA or such other regulatory agencies as

reflected in the product's approved labeling. If we receive marketing approval for a product candidate, physicians may nevertheless prescribe it to their patients in a manner that is inconsistent with the approved label. If we are found to have promoted such off-label uses, we may become subject to significant liability. The US federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined several companies from engaging in off-label promotion. The government has also required companies to enter into consent decrees or imposed permanent injunctions under which specified promotional conduct is changed or curtailed. If we cannot successfully manage the promotion of our product candidates, if approved, we could become subject to significant liability, which would materially adversely affect our business and financial condition.

Our product candidates for which we intend to seek approval as biologic products may face competition sooner than anticipated.

The ACA includes the BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-licensed reference biological product. Under the BPCIA, an application for a highly similar or "biosimilar" product may not be submitted to the FDA until four years following the date that the reference product was first approved by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first approved. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of their product. We believe that any of our product candidates approved as a biological product under a BLA should qualify for the 12-year period of exclusivity. However, there is a risk that this exclusivity could be shortened due to congressional action or otherwise, or that the FDA will not consider our product candidates to be reference products for competing products, potentially creating the opportunity for competition sooner than anticipated.

The commercial success of our product candidates will depend upon the degree of market acceptance of such product candidates by physicians, patients, healthcare payors and others in the medical community.

Our product candidates may not be commercially successful. Even if any of our product candidates receive regulatory approval, they may not gain market acceptance among physicians, patients, healthcare payors or the medical community. The commercial success of any of our current or future product candidates will depend significantly on the broad adoption and use of the resulting product by physicians and patients for approved indications. The degree of market acceptance of our products will depend on a number of factors, including:

- demonstration of clinical efficacy and safety compared to other more-established products;
- the indications for which our product candidates are approved;
- the limitation of our targeted patient population and other limitations or warnings contained in any FDA-approved labeling;
- acceptance of a new drug for the relevant indication by healthcare providers and their patients;
- the pricing and cost-effectiveness of our products, as well as the cost of treatment with our products in relation to alternative treatments and therapies;
- our ability to obtain and maintain sufficient third-party coverage and adequate reimbursement from government healthcare programs, including Medicare and Medicaid, private health insurers and other third-party payors;
- the willingness of patients to pay all, or a portion of, out-of-pocket costs associated with our products in the absence of sufficient third-party coverage and adequate reimbursement;
- any restrictions on the use of our products, and the prevalence and severity of any adverse effects;
- potential product liability claims;
- the timing of market introduction of our products as well as competitive drugs;
- the effectiveness of our or any of our current or potential future collaborators' sales and marketing strategies; and
- unfavorable publicity relating to the product, our company, or product candidates or similar approved products or product candidates in development by third parties.

If any product candidate is approved but does not achieve an adequate level of acceptance by physicians, hospitals, healthcare payors or patients, we may not generate sufficient revenue from that product and may not become or remain profitable. Our efforts to educate the medical community and third-party payors regarding the benefits of our products may require significant resources and may never be successful.

The successful commercialization of our product candidates, if approved, will depend in part on the extent to which governmental authorities and health insurers establish coverage, adequate reimbursement levels and favorable pricing policies. Failure to obtain or maintain coverage and adequate reimbursement for our products could limit our ability to market those products and decrease our ability to generate revenue.

The availability of coverage and the adequacy of reimbursement by governmental healthcare programs such as Medicare and Medicaid, private health insurers and other third-party payors are essential for most patients to be able to afford prescription medications such as our product candidates, if approved. Our ability to achieve coverage and acceptable levels of reimbursement for our products by third-party payors will have an effect on our ability to successfully commercialize those products. Accordingly, we will need to successfully implement a coverage and reimbursement strategy for any approved product candidate. Even if we obtain coverage for a given product by a third-party payor, the resulting reimbursement payment rates may not be adequate or may require co-payments that patients find unacceptably high. For products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs. Additionally, separate reimbursement for the product itself or the treatment or procedure in which the product is used may not be available, which may impact physician utilization. We cannot be sure that coverage and reimbursement in the United States, the European Union or elsewhere will be available for any product that we may develop, and any reimbursement that may become available may be decreased or eliminated in the future.

Third-party payors increasingly are challenging prices charged for biopharmaceutical products and services, and many third-party payors may refuse to provide coverage and reimbursement for particular drugs when an equivalent generic drug or a less expensive therapy is available. It is possible that a third-party payor may consider our products as substitutable and only offer to reimburse patients for the less expensive product. Even if we are successful in demonstrating improved efficacy or improved convenience of administration with our products, pricing of existing drugs may limit the amount we will be able to charge for our products. These payors may deny or revoke the reimbursement status of a given product or establish prices for new or existing marketed products at levels that are too low to enable us to realize an appropriate return on our investment in product development. If reimbursement is not available or is available only at limited levels, we may not be able to successfully commercialize our products and may not be able to obtain a satisfactory financial return on products that we may develop. In addition, in the event that we develop companion diagnostic tests for use with our products, once approved, such companion diagnostic tests will require coverage and reimbursement separate and apart from the coverage and reimbursement for their companion pharmaceutical or biological products. Similar challenges to obtaining coverage and reimbursement applicable to pharmaceutical or biological products will apply to companion diagnostics tests.

There is significant uncertainty related to third-party payor coverage and reimbursement of newly approved products. In the United States, third-party payors, including private and governmental payors, such as the Medicare and Medicaid programs, play an important role in determining the extent to which new drugs will be covered. Some third-party payors may require pre-approval of coverage for new or innovative devices or drug therapies before they will reimburse healthcare providers who use such therapies. It is difficult to predict at this time what third-party payors will decide with respect to the coverage and reimbursement for our products.

Obtaining and maintaining reimbursement status is time-consuming, costly and uncertain. The Medicare and Medicaid programs increasingly are used as models for how private payors and other governmental payors develop their coverage and reimbursement policies for drugs. However, no uniform policy for coverage and reimbursement for products exists among third-party payors in the United States. Therefore, coverage and reimbursement for products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance. Furthermore, rules and regulations regarding reimbursement change frequently, in some cases at short notice, and we believe that changes in these rules and regulations are likely.

Outside the United States, international operations are generally subject to extensive governmental price controls and other market regulations, and we believe the increasing emphasis on cost-containment initiatives in Europe and other countries has and will continue to put pressure on the pricing and usage of our products. In many countries, the prices of

medical products are subject to varying price control mechanisms as part of national health systems. Other countries allow companies to fix their own prices for medical products but monitor and control company profits. Additional foreign price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our products. Accordingly, in markets outside the United States, the reimbursement for our products may be reduced compared with the United States and may be insufficient to generate commercially reasonable revenue and profits.

Moreover, increasing efforts by governmental and third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products and, as a result, they may not cover or provide adequate payment for our products. We expect to experience pricing pressures in connection with the sale of any of our products due to the trend toward managed healthcare, the increasing influence of health maintenance organizations and additional legislative changes. The downward pressure on healthcare costs in general, particularly prescription drugs and surgical procedures and other treatments, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products.

We face significant competition from entities that have developed or may develop product candidates for cancer, including companies developing novel treatments and technology platforms. If our competitors develop technologies or product candidates more rapidly than we do or their technologies are more effective, our business and our ability to develop and successfully commercialize products may be adversely affected.

Although the biotechnology and pharmaceutical industries, and the oncology sector, are characterized by rapid evolution of technologies, fierce competition, and strong defense of intellectual property rights, we believe the most fearsome competitor of all is cancer itself. As such, we view other companies in this sector more as potential allies and collaborators than as competitors, as we all have a common cause: to defeat cancer. Many of the companies that are developing or marketing treatments for cancer, including major pharmaceutical and biotechnology companies that are working on therapies targeting the RAS/MAPK pathway, are companies with whom we endeavor to collaborate in our mission to erase cancer. That being said, our commercial potential could be reduced or eliminated if other companies develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than products that we may develop. Our competitors have developed, are developing or may develop products, product candidates and processes competitive with our product candidates. Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future. We believe that a significant number of products are currently under development, and may become commercially available in the future, for the treatment of indications for which we may attempt to develop product candidates. In particular, there is intense competition in the oncology field. Our competitors include larger and better funded pharmaceutical, biopharmaceutical, biotechnological and therapeutics companies. Moreover, we may also compete with universities and other research institutions who may be active in oncology research and could be in direct competition with us. We also compete with these organizations to recruit management, scientists and clinical development personnel, which could negatively affect our level of expertise and our ability to execute our business plan. We will also face competition in establishing clinical trial sites, enrolling subjects for clinical trials and in identifying and in-licensing new product candidates. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies.

If any of our product candidates are approved, they will compete with small molecule therapies, biologics, cell-based therapies and traditional chemotherapy, either approved or under development, which are intended to treat the same indications that we are targeting or may target, including through approaches that may prove to be more effective, have fewer side effects, be less costly to manufacture, be more convenient to administer or have other advantages over our product candidates. In addition to competing with other therapies targeting similar indications, there are numerous other companies and academic institutions focused on similar targets as our product candidates and/or different scientific approaches to treating the same indications. We face competition from such companies in seeking any future potential collaborations to partner our product candidates, as well as potentially competing commercially for any approved products.

Specifically, there are also a number of pharmaceutical companies with product candidates in development that target the nodes involving the RAS/MAPK pathway. These include, among others, Amgen, AstraZeneca, Black Diamond Therapeutics, BioMed Valley Discoveries, Boehringer Ingelheim, Deciphera Pharmaceuticals, Eli Lilly, Jacobio Pharmaceuticals (in collaboration with AbbVie), Janssen, Merck, Mirati Therapeutics, Navire Pharma (a subsidiary of BridgeBio), Novartis, Pfizer, Relay Therapeutics (in collaboration with Genentech), Revolution Medicines, Roche/Genentech, Sanofi, and Schrödinger (in collaboration with Bristol Myers Squibb).

Many of our competitors have significantly greater financial, technical, manufacturing, marketing, sales and supply resources or experience than we do. If we successfully obtain approval for any product candidate, we will face competition based on many different factors, including the safety and effectiveness of our products, the ease with which our products can be administered and the extent to which patients accept relatively new routes of administration, the timing and scope of regulatory approvals for these products, the availability and cost of manufacturing, marketing and sales capabilities, price, reimbursement coverage and patent position. Competing products could present superior treatment alternatives, including by being more effective, safer, more convenient, less expensive or marketed and sold more effectively than any products we may develop. Competitive products approaches may make any products we develop obsolete or noncompetitive before we recover the expense of developing and commercializing our product candidates. If we are unable to compete effectively, our opportunity to generate revenue from the sale of our products we may develop, if approved, could be adversely affected.

The market opportunities for our product candidates may be limited to patients who are ineligible for or have failed prior treatments and may be small or different from our estimates.

Cancer therapies are defined by lines of therapy as well as by treatment-naïve or previously-treated status. Often the initial approval for a new therapy is in later lines and subsequent approval in an earlier line may not be feasible. When cancer is detected early enough, first line therapy is sometimes adequate to cure the cancer or prolong life without a cure. Whenever first line therapy, including targeted therapy, immunotherapy, chemotherapy, hormone therapy, surgery or a combination of these, proves unsuccessful, second line therapy may be administered. Second line therapies often consist of additional chemotherapy, radiation, antibody drugs, tumor targeted small molecules or a combination of these. Third line therapies can include bone marrow transplantation, antibody and small molecule targeted therapies, more invasive forms of surgery and new technologies. In markets with approved therapies, there is no guarantee that our product candidates, even if approved, would be approved for second line or first line therapy. This could limit our potential market opportunity. In addition, we may have to conduct additional clinical trials prior to gaining approval for second line or first line therapy.

Our projections of both the number of people who have the cancers we are targeting, as well as the subset of people with these cancers in a position to receive later stage therapy and who have the potential to benefit from treatment with our product candidates, are based on our beliefs and estimates. These estimates have been derived from a variety of sources, including the scientific literature, publicly available clinical molecular reports, patient foundations or market research, and may prove to be incorrect. Further, new trials or information may change the estimated incidence or prevalence of these cancers. The number of patients in the United States and other major markets and elsewhere may turn out to be lower than expected, patients may not be otherwise amenable to treatment with our products or new patients may become increasingly difficult to identify or gain access to, all of which would adversely affect our results of operations and our business. Further, even if we obtain significant market share for our product candidates, because some of our potential target populations are very small, we may never achieve profitability despite obtaining such significant market share.

We currently have no marketing and sales organization and have no experience as a company in commercializing products, and we may have to invest significant resources to develop these capabilities. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell our products, we may not be able to generate product revenue.

We have no internal sales, marketing or distribution capabilities, nor have we ever commercialized a product. If any of our product candidates ultimately receives regulatory approval, we must build a marketing and sales organization with technical expertise and supporting distribution capabilities to commercialize each such product in major markets, which will be expensive and time-consuming, or collaborate with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems. We have no prior experience as a company in the marketing, sale and distribution of biopharmaceutical products and there are significant risks involved in building and managing a sales organization, including our ability to hire, retain and incentivize qualified individuals, generate sufficient sales leads, provide adequate training to sales and marketing personnel and effectively manage a geographically dispersed sales and marketing team. Any failure or delay in the development of our internal sales, marketing and distribution capabilities would adversely impact the commercialization of these products. We may not be able to enter into collaborations or hire consultants or external service providers to assist us in sales, marketing and distribution functions on acceptable financial terms, or at all. In addition, our product revenue and our profitability, if any, may be lower if we rely on third parties for these functions than if we were to market, sell and distribute any products that we develop ourselves. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our

products effectively. If we are not successful in commercializing our products, either on our own or through arrangements with one or more third parties, we may not be able to generate any future product revenue and we would incur significant additional losses.

Our future growth may depend, in part, on our ability to operate in foreign markets, where we would be subject to additional regulatory burdens and other risks and uncertainties.

Our future growth may depend, in part, on our ability to develop and commercialize our product candidates in foreign markets. We are not permitted to market or promote any of our product candidates before we receive regulatory approval from applicable regulatory authorities in foreign markets, and we may never receive such regulatory approvals for any of our product candidates. To obtain separate regulatory approval in many other countries we must comply with numerous and varying regulatory requirements regarding safety and efficacy and governing, among other things, clinical trials, commercial sales, pricing and distribution of our product candidates. If we obtain regulatory approval of our product candidates and ultimately commercialize our products in foreign markets, we would be subject to additional risks and uncertainties, including:

- different regulatory requirements for approval of drugs in foreign countries;
- reduced protection for intellectual property rights;
- the existence of additional third-party patent rights of potential relevance to our business;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- foreign reimbursement, pricing and insurance regimes;
- workforce uncertainty in countries where labor unrest is common;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and
- business interruptions resulting from geopolitical actions, including war and terrorism, or natural disasters including earthquakes, typhoons, floods and fires.

Risks related to our business operations and industry

Our operating results may fluctuate significantly, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or any guidance we may provide.

Our quarterly and annual operating results may fluctuate significantly, which makes it difficult for us to predict our future operating results. These fluctuations may occur due to a variety of factors, many of which are outside of our control, including, but not limited to:

- the timing and cost of, and level of investment in, research, development, regulatory approval and commercialization activities relating to our product candidates, which may change from time to time;
- the timing and success or failure of preclinical studies or clinical trials for our product candidates or competing product candidates, or any other change in the competitive landscape of our industry, including consolidation among our competitors or partners;
- coverage and reimbursement policies with respect to our product candidates, if approved, and potential future drugs that compete with our products;
- the cost of manufacturing our product candidates, which may vary depending on the quantity of production and the terms of our agreements with third-party manufacturers;
- expenditures that we will or may incur to acquire, develop or commercialize additional product candidates and technologies or other assets;

- the level of demand for any approved products, which may vary significantly and be difficult to predict; and
- future accounting pronouncements or changes in our accounting policies;

The cumulative effects of these factors could result in large fluctuations and unpredictability in our quarterly and annual operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Investors should not rely on our past results as an indication of our future performance.

This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If our revenue or operating results fall below the expectations of analysts or investors or below any forecasts we may provide to the market, or if the forecasts we provide to the market are below the expectations of analysts or investors, the price of our common stock could decline substantially. Such a stock price decline could occur even when we have met any previously publicly stated revenue or earnings guidance we may provide.

Our success is dependent on our ability to attract and retain highly qualified management and other clinical and scientific personnel.

Our success depends in part on our continued ability to attract, retain, manage, and motivate highly qualified management, clinical, and scientific personnel, and we face significant competition for experienced personnel. We are highly dependent upon our senior management, as well as our senior scientists and other members of our management team. The loss of services of any of these individuals could delay or prevent the successful development of our product pipeline, initiation, or completion of our clinical trials and preclinical studies or the commercialization of our product candidates. Although we have executed employment agreements or offer letters with each member of our senior management team, these agreements are terminable at will with or without notice and, therefore, we may not be able to retain their services as expected. We do not currently maintain “key person” life insurance on the lives of our executives or any of our employees. This lack of insurance means that we may not have adequate compensation for the loss of the services of these individuals.

We will need to expand and effectively manage our managerial, operational, financial, and other resources in order to successfully pursue our clinical development and commercialization efforts. We may not be successful in maintaining our unique company culture and continuing to attract or retain qualified management, clinical, and scientific personnel in the future due to the intense competition for qualified personnel among biopharmaceutical, biotechnology, and other businesses, particularly in the San Diego area. Our industry has experienced a high rate of turnover of management personnel in recent years. If we are not able to attract, integrate, retain, and motivate necessary personnel to accomplish our business objectives, we may experience constraints that will significantly impede the achievement of our development objectives, our ability to raise additional capital, and our ability to implement our business strategy.

We may encounter difficulties in managing our growth and expanding our operations successfully.

We have substantially increased our organization from 30 employees as of December 31, 2019 to 123 employees as of February 28, 2022. As we continue development and pursue the potential commercialization of our product candidates, as well as function as a public company, we will need to expand our financial, development, regulatory, manufacturing, marketing and sales capabilities or contract with third parties to provide these capabilities for us. As our operations expand, we expect that we will need to manage additional relationships with various strategic partners, suppliers and other third parties. Our future financial performance and our ability to develop and commercialize our product candidates and to compete effectively will depend, in part, on our ability to manage any future growth effectively.

We are subject to various US federal, state and foreign healthcare laws and regulations, which could increase compliance costs, and our failure to comply with these laws and regulations could harm our reputation, subject us to significant fines and liability or otherwise adversely affect our business.

Our business operations and current and future arrangements with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers expose us to broadly applicable foreign, federal and state fraud and abuse and other healthcare laws and regulations. These laws may constrain the business or financial arrangements and relationships through which we conduct our operations, including how we research, market, sell and distribute any products for which we obtain marketing approval. Such laws include:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or providing any remuneration (including any kickback, bribe or certain rebates), directly or indirectly, overtly or covertly, in cash or in kind, in return for, either the referral of an

individual or the purchase, lease, or order, or arranging for or recommending the purchase, lease, or order of any good, facility, item or service, for which payment may be made, in whole or in part, under a federal healthcare program such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the federal Anti-Kickback Statute or specific intent to violate it in order to have committed a violation;

- the federal false claims laws, including the civil False Claims Act, and civil monetary penalties laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, to the federal government, claims for payment or approval that are false or fraudulent, knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim, or from knowingly making or causing to be made a false statement to avoid, decrease or conceal an obligation to pay money to the federal government. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act;
- the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), which imposes criminal and civil liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement, in connection with the delivery of, or payment for, healthcare benefits, items or services. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the federal Physician Payments Sunshine Act, which requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to report annually to the CMS, information related to payments and other "transfers of value" made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), certain non-physician practitioners (physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, anesthesiology assistants and certified nurse-midwives) and teaching hospitals, as well as ownership and investment interests held by such healthcare professionals and their immediate family members; and
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers; some state laws require biotechnology companies to comply with the biotechnology industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government and may require certain biotechnology companies to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; some state laws that require biotechnology companies to report information on the pricing of certain drug products; and some state and local laws require the registration or pharmaceutical sales representatives.

Efforts to ensure that our current and future business arrangements with third parties will comply with applicable healthcare laws and regulations will involve ongoing substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant penalties, including civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from participation in government funded healthcare programs, including Medicare and Medicaid, integrity oversight and reporting obligations, contractual damages, reputational harm, diminished profits and future earnings and the curtailment or restructuring of our operations. Defending against any such actions can be costly, time-consuming and may require significant financial and personnel resources. Therefore, even if we are successful in defending against any such actions that may be brought against us, our business may be impaired. Further, if any of the physicians or other healthcare providers or entities with whom we expect to do business is found to be not in compliance with applicable laws, they may be subject to significant criminal, civil or administrative sanctions, including exclusions from government funded healthcare program.

Recently enacted legislation, future legislation and healthcare reform measures may increase the difficulty and cost for us to obtain marketing approval for and commercialize our product candidates and may affect the prices we may set.

In the United States and some foreign jurisdictions, there have been, and we expect there will continue to be, a number of legislative and regulatory changes to the healthcare system, including cost-containment measures that may reduce or limit coverage and reimbursement for newly approved drugs and affect our ability to profitably sell any product candidates for which we obtain marketing approval. In particular, there have been and continue to be a number of initiatives at the US federal and state levels that seek to reduce healthcare costs and improve the quality of healthcare.

For example, in March 2010, the ACA was enacted in the United States. Among the provisions of the ACA of importance to our potential product candidates, the ACA: established an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic agents; extended manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations; expands eligibility criteria for Medicaid programs; expanded the entities eligible for discounts under the Public Health Service pharmaceutical pricing program; increased the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program; creates a new Medicare Part D coverage gap discount program; established a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in and conduct comparative clinical effectiveness research, along with funding for such research; and established a Center for Medicare and Medicaid Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending.

There have been executive, judicial and Congressional challenges to certain aspects of the ACA. On June 17, 2021, the US Supreme Court dismissed the most recent judicial challenge to the ACA brought by several states without specifically ruling on the constitutionality of the ACA. Prior to the Supreme Court's decision, President Biden issued an executive order to initiate a special enrollment period from February 15, 2021 through August 15, 2021 for purposes of obtaining health insurance coverage through the ACA marketplace. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. It is unclear how the healthcare reform measures of the Biden administration will impact our business.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. On August 2, 2011, the Budget Control Act of 2011 was signed into law, which, among other things, resulted in reductions to Medicare payments to providers of 2% per fiscal year, which went into effect on April 1, 2013 and, due to subsequent legislative amendments to the statute, will remain in effect through 2030, with the exception of a temporary suspension from May 1, 2020 through March 31, 2022, unless additional Congressional action is taken. On January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, reduced Medicare payments to several providers, including hospitals, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Further, there has been heightened governmental scrutiny in the United States of pharmaceutical pricing practices in light of the rising cost of prescription drugs. Such scrutiny has resulted in several recent congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for products. At the federal level, the Trump administration used several means to propose or implement drug pricing reform, including through federal budget proposals, executive orders and policy initiatives. It is unclear whether the Biden administration will work to reverse these measures or pursue similar policy initiatives. Further, it is possible that additional governmental action is taken in response to the COVID-19 pandemic.

At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. Legally mandated price controls on payment amounts by third-party payors or other restrictions could harm our business, results of operations, financial condition and prospects. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. This could reduce the ultimate demand for our product candidates, if approved, or put pressure on our product pricing, which could negatively affect our business, results of operations, financial condition and prospects.

We expect that the ACA, these new laws and other healthcare reform measures that may be adopted in the future may result in additional reductions in Medicare and other healthcare funding, more rigorous coverage criteria, new payment methodologies and additional downward pressure on the price that we receive for any approved product. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our product candidates, if approved.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of our products.

We face an inherent risk of product liability as a result of the clinical trials of our product candidates and will face an even greater risk if we commercialize our product candidates. For example, we may be sued if our product candidates allegedly cause injury or are found to be otherwise unsuitable during product testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product candidate, negligence, strict liability and a breach of warranties. Claims may be brought against us by clinical trial participants, patients or others using, administering or selling products that may be approved in the future. Claims could also be asserted under state consumer protection acts.

If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit or cease the commercialization of our products. Even a successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our products;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- costs to defend the related litigation;
- a diversion of our management's time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- significant negative financial impact;
- the inability to commercialize our product candidates; and
- a decline in our stock price.

We currently hold approximately $10 million in product liability insurance coverage in the aggregate. We may need to increase our insurance coverage as we expand our clinical trials or if we commence commercialization of our product candidates. Insurance coverage is increasingly expensive. Our inability to obtain and retain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of our product candidates. Although we will maintain such insurance, any claim that may be brought against us could result in a court judgment or settlement in an amount that is not covered, in whole or in part, by our insurance or that is in excess of the limits of our insurance coverage. Our insurance policies will also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. We may have to pay any amounts awarded by a court or negotiated in a settlement that exceed our coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient capital to pay such amounts.

Our insurance policies are expensive and only protect us from some business risks, which will leave us exposed to significant uninsured liabilities.

We do not carry insurance for all categories of risk that our business may encounter. Some of the policies we currently maintain include property, general liability, employment benefits liability, business automobile, workers' compensation, products liability, malicious invasion of our electronic systems, clinical trials, and directors' and officers' employment practices and fiduciary liability insurance. We do not know, however, if we will be able to maintain insurance with adequate levels of coverage. No assurance can be given that an insurance carrier will not seek to cancel or deny coverage after a claim has occurred. Any significant uninsured liability may require us to pay substantial amounts, which would adversely affect our financial position and results of operations.

We and any of our potential future collaborators will be required to report to regulatory authorities if any of our approved products cause or contribute to adverse medical events, and any failure to do so would result in sanctions that would materially harm our business.

If we or any of our potential future collaborators are successful in commercializing our products, the FDA and foreign regulatory authorities would require that we and such collaborators report certain information about adverse medical events if those products may have caused or contributed to those adverse events. The timing of our obligation to report would be triggered by the date we become aware of the adverse event as well as the nature of the event. We and any of our potential future collaborators or CROs may fail to report adverse events within the prescribed timeframe. If we or any of our potential future collaborators or CROs fail to comply with such reporting obligations, the FDA or a foreign regulatory authority could take action, including criminal prosecution, the imposition of civil monetary penalties, seizure of our products or delay in approval or clearance of future products.

Our internal computer systems, or those of any of our CROs, manufacturers, other contractors or consultants or current or potential future collaborators, may fail or suffer security breaches, which could result in a material disruption of our product development programs, harm our reputation, significant fines, penalties and liability and loss of customers or sales.

In the ordinary course of business, we collect, store, transmit and otherwise process large amounts of data including, without limitation, proprietary business information and personal information. Despite the implementation of security measures, our information technology systems (including infrastructure) and those of our current and any future CROs and other contractors, consultants, third-party service providers, vendors and collaborators are vulnerable to damage from computer viruses, cybersecurity threats (such as denial-of-service attacks, ransomware, supply chain attacks, cyber-attacks or cyber-intrusions over the Internet, hacking, phishing and other social engineering attacks), unauthorized access or use, natural disasters, terrorism, war and telecommunication and electrical failures. Our systems are also subject to compromise from internal threats, such as theft, misuse, unauthorized access or other improper or accidental actions by employees, vendors and other third parties with otherwise legitimate access to our systems. Third parties may also attempt to fraudulently induce our employees and contractors into disclosing sensitive information such as usernames, passwords or other information, or otherwise compromise the security of our electronic systems, networks, and/or physical facilities in order to gain access to our data. Attacks upon information technology systems are increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives and expertise. Additionally, due to the COVID-19 pandemic, we may also face increased cybersecurity risks due to our reliance on internet technology and the number of our employees who are working remotely, which may create additional opportunities for cybercriminals to exploit vulnerabilities. Furthermore, new techniques may not be identified until they are launched against a target, and we may be unable to anticipate these techniques or detect an incident, assess its severity or impact, react or appropriately respond in a timely manner or implement adequate preventative measures, resulting in potential data loss or other damage to our information technology systems. Given the unpredictability of the timing, nature and scope of information technology disruptions, there can be no assurance that any security procedures and controls that we or our third-party partners and service providers have implemented will be sufficient to prevent cyber-attacks from occurring. The latency of a compromise is often measured in months, but could be years, and we may not be able to detect a compromise in a timely manner.

If a security breach were to occur and cause interruptions in our operations or result in the unauthorized disclosure of or access to personally identifiable information or individually identifiable health information (potentially violating certain privacy laws), it could result in a material disruption of our development programs and our business operations, whether due to a loss of our trade secrets or other similar disruptions. Some of the federal, state and foreign government requirements include obligations of companies to notify individuals of security breaches involving particular personally identifiable information, which could result from breaches experienced by us or by our vendors, contractors, or organizations with which we have formed strategic relationships.

Any security breach or other incident, whether actual or perceived, could impact our reputation, cause us to incur significant costs, including legal expenses, harm customer confidence, hurt our expansion into new markets, cause us to incur remediation costs, or cause us to lose existing customers. For example, the loss of clinical trial data from clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. We also rely on third parties to manufacture our product candidates, and similar events relating to their computer systems could also have a material adverse effect on our business. We have also outsourced elements of our information technology infrastructure, and as a result a number of third-party vendors may or could have access to our confidential information. To the extent that any actual or perceived disruption or security breach affects our systems (or those of our third-party collaborators, service providers, vendors, contractors or consultants) or were to result in a loss of or accidental,

unlawful or unauthorized access to, use of, release of, or other processing of personally identifiable information, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability, the further development and commercialization of our product candidates could be delayed, and we could be subject to significant fines, penalties or liabilities for any noncompliance with certain privacy and security laws.

Our business is subject to risks arising from COVID-19 and other epidemic diseases.

The COVID-19 worldwide pandemic has presented substantial public health and economic challenges and is affecting our employees, patients, physicians and other healthcare providers, communities and business operations, as well as the US and global economies and financial markets. International and US governmental authorities in impacted regions have taken, and are continuing to take actions in an effort to slow the spread of COVID-19 and variants of the virus. In response, our administrative employees have worked remotely and we have limited the number of staff in our research and development laboratories. To date we have not experienced material disruptions in our business operations.

However, the continuing COVID-19 pandemic and any future epidemic diseases may cause disruptions that could severely impact our business, clinical trials, preclinical studies and financial condition, including:

- delays or difficulties in enrolling patients in clinical trials;
- delays or difficulties in clinical site initiation, including difficulties in recruiting clinical site investigators and staff;
- interruption of, or delays in receiving, supplies of our product candidates from our CMOs due to staffing shortages, production slowdowns or stoppages and disruptions in delivery systems;
- interruptions or delays in clinical trials or preclinical studies due to restricted or limited operations at our laboratory facility or those of our outsourced service providers;
- limitations on employee resources that would otherwise be focused on the conduct of our clinical trials or preclinical studies due to sickness of employees or their families or the desire of employees to avoid contact with large groups of people, or other staffing shortages as a result of remote working requirements or otherwise;
- delays in clinical sites receiving the supplies and materials needed to conduct our clinical trials and interruption in global shipping that may affect the transport of clinical trial materials;
- diversion of healthcare resources away from the conduct of clinical trials, including the diversion of hospitals serving as our clinical trial sites and hospital staff supporting the conduct of our clinical trials;
- interruption of key clinical trial activities, such as clinical trial site monitoring and source data verification, due to limitations on travel imposed or recommended by federal or state governments, employers and others or interruption of clinical trial subject visits and study procedures, which may impact the integrity of subject data and clinical study endpoints;
- interruption or delays in the operations of the FDA or other regulatory authorities, which may impact review and approval timelines;
- delays in receiving authorization from local regulatory authorities to initiate our planned clinical trials;
- changes in local regulations as part of a response to COVID-19 which may require us to change the ways in which our clinical trials are conducted, which may result in unexpected costs, or to discontinue such clinical trials altogether;
- delays in necessary interactions with local regulators, ethics committees, and other important agencies and contractors due to limitations in employee resources or forced furlough of government employees;
- refusal of the FDA to accept data from clinical trials in affected geographies outside the United States; and
- patent office interruption or delays in our ability to timely secure patent coverage for our product candidates.

The COVID-19 pandemic continues to rapidly evolve. The extent to which the COVID-19 pandemic may impact our business, including our clinical trials, preclinical studies and financial condition will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the continued geographic spread of variants, the duration of the pandemic, the timing and effectiveness of vaccine distribution, travel restrictions and social distancing in the United States and other countries, business closures or business disruptions and the effectiveness of actions taken in the United States and other countries to contain and treat the disease.

To the extent the COVID-19 pandemic adversely affects our business and financial results, it may also have the effect of heightening many of the other risks described in this section. In addition, if in the future there is an outbreak of another highly infectious or contagious disease or other health concern, we may be subject to similar risks as posed by COVID-19.

Our business could be affected by litigation, government investigations and enforcement actions.

We currently operate in a number of jurisdictions in a highly regulated industry and we could be subject to litigation, government investigation and enforcement actions on a variety of matters in the United States or foreign jurisdictions, including, without limitation, intellectual property, regulatory, product liability, environmental, whistleblower, false claims, privacy, anti-kickback, anti-bribery, securities, commercial, employment and other claims and legal proceedings which may arise from conducting our business. Any determination that our operations or activities are not in compliance with existing laws or regulations could result in the imposition of fines, civil and criminal penalties, equitable remedies, including disgorgement, injunctive relief and/or other sanctions against us, and remediation of any such findings could have an adverse effect on our business operations.

Legal proceedings, government investigations and enforcement actions can be expensive and time-consuming. An adverse outcome resulting from any such proceeding, investigations or enforcement actions could result in significant damages awards, fines, penalties, exclusion from the federal healthcare programs, healthcare debarment, injunctive relief, product recalls, reputational damage and modifications of our business practices, which could have a material adverse effect on our business and results of operations.

Our employees and independent contractors, including principal investigators, CROs, consultants and vendors, may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk that our employees and independent contractors, including principal investigators, CROs, consultants and vendors may engage in misconduct or other illegal activity. Misconduct by these parties could include intentional, reckless and/or negligent conduct or disclosure of unauthorized activities to us that violate: (i) the laws and regulations of the FDA and other similar regulatory requirements, including those laws that require the reporting of true, complete and accurate information to such authorities, (ii) manufacturing standards, including cGMP requirements, (iii) federal and state data privacy, security, fraud and abuse and other healthcare laws and regulations in the United States and abroad or (iv) laws that require the true, complete and accurate reporting of financial information or data. Activities subject to these laws also involve the improper use or misrepresentation of information obtained in the course of clinical trials, the creation of fraudulent data in our preclinical studies or clinical trials or illegal misappropriation of drug product, which could result in regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify and deter misconduct by employees and other third parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. In addition, we are subject to the risk that a person or government could allege such fraud or other misconduct, even if none occurred. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and financial results, including, without limitation, the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgements, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, imprisonment, contractual damages, reputational harm, diminished profits and future earnings, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

We may engage in strategic transactions that could impact our liquidity, increase our expenses and present significant distractions to our management.

From time to time, we may consider strategic transactions, such as acquisitions of companies, asset purchases and out-licensing or in-licensing of intellectual property, products or technologies, similar to our approach in which we in-licensed and acquired certain of our current product candidates and development programs. Additional potential transactions that we may consider in the future include a variety of business arrangements, including spin-offs, strategic partnerships, joint ventures, restructurings, divestitures, business combinations and investments. Any future transactions could increase our near and long-term expenditures, result in potentially dilutive issuances of our equity securities, including our common stock, or the incurrence of debt, contingent liabilities, amortization expenses or acquired in-process research and development expenses, any of which could affect our financial condition, liquidity and results of operations. Future

acquisitions may also require us to obtain additional financing, which may not be available on favorable terms or at all. These transactions may never be successful and may require significant time and attention of our management. In addition, the integration of any business that we may acquire in the future may disrupt our existing business and may be a complex, risky and costly endeavor for which we may never realize the full benefits of the acquisition. Accordingly, although there can be no assurance that we will undertake or successfully complete any additional transactions of the nature described above, any additional transactions that we do complete could have a material adverse effect on our business, results of operations, financial condition and prospects.

Our ability to use net operating loss carryforwards and other tax attributes may be limited.

We have incurred substantial losses during our history, do not expect to become profitable in the near future and may never achieve profitability. To the extent that we continue to generate taxable losses, unused losses will carry forward to offset future taxable income, if any, until such unused losses expire (if at all). As of December 31, 2021, we had federal, California and other state net operating loss (NOL) carryforwards of $135.0 million, $133.6 million and $3.1 million, respectively.

Federal NOL carryforwards arising in tax years beginning after December 31, 2017, may be carried forward indefinitely. The deductibility of federal NOL carryforwards, particularly for tax years beginning after December 31, 2020, may be limited. In addition, our NOL carryforwards are subject to review and possible adjustment by the United States Internal Revenue Service and state tax authorities.

Under Section 382 of the Internal Revenue Code of 1986, as amended (IRC), our federal NOL carryforwards may become subject to an annual limitation in the event of certain cumulative changes in the ownership of our company. An “ownership change” pursuant to Section 382 of the IRC generally occurs if one or more stockholders or groups of stockholders who own at least 5% of a company’s stock increase their ownership by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period. Similar rules may apply under state tax laws. We have not yet formally determined the amount of the cumulative change in our ownership resulting from our IPO or other transactions, or any resulting limitations on our ability to utilize our NOL carryforwards and other tax attributes. However, we believe that our ability to utilize our NOL carryforwards and other tax attributes to offset future taxable income or tax liabilities may be limited as a result of ownership changes, including changes related to our IPO. If we earn taxable income, such limitations could result in increased future income tax liability to us and our future cash flows could be adversely affected. We have recorded a full valuation allowance related to our NOL carryforwards and other deferred tax assets due to the uncertainty of the ultimate realization of the future benefits of those assets.

Investors’ expectations of our performance relating to environmental, social and governance factors may impose additional costs and expose us to new risks.

There is an increasing focus from certain investors, employees and other stakeholders concerning corporate responsibility, specifically related to environmental, social and governance factors. Some investors may use these factors to guide their investment strategies and, in some cases, may choose not to invest in us if they believe our policies relating to corporate responsibility are inadequate, including if they believe our policies relating to the Erasca Foundation are inadequate. Third-party providers of corporate responsibility ratings and reports on companies have increased to meet growing investor demand for measurement of corporate responsibility performance. The criteria by which companies’ corporate responsibility practices are assessed may change, which could result in greater expectations of us and cause us to undertake costly initiatives to satisfy such new criteria. If we elect not to or are unable to satisfy such new criteria, investors may conclude that our policies with respect to corporate responsibility are inadequate. We may face reputational damage in the event that our corporate responsibility procedures or standards do not meet the standards set by various constituencies.

Furthermore, if our competitors’ corporate responsibility performance is perceived to be greater than ours, potential or current investors may elect to invest with our competitors instead. In addition, in the event that we communicate certain initiatives and goals regarding environmental, social and governance matters, including with respect to the initiatives and goals we established as part of the Erasca Foundation, we could fail, or be perceived to fail, in our achievement of such initiatives or goals, or we could be criticized for the scope of such initiatives or goals. If we fail to satisfy the expectations of investors, employees and other stakeholders or our initiatives are not executed as planned, our reputation and financial results could be materially and adversely affected.

Risks related to our intellectual property

If we are unable to obtain and maintain patent protection for our product candidates, or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize our product candidates may be adversely affected.

Our success depends in large part on our ability to obtain and maintain patent protection and trade secret protection with respect to our therapeutic programs, proprietary technologies, and their uses. We seek to protect our proprietary position, in part, by filing patent applications in the United States and abroad relating to our product candidates. We also seek to protect our proprietary position by acquiring or in-licensing relevant issued patents or pending applications from third parties. If we are unable to obtain or maintain patent protection with respect to our product candidates, our business, financial condition, results of operations and prospects could be materially harmed.

Changes in either the patent laws or their interpretation in the United States and other jurisdictions may diminish our ability to protect our intellectual property, obtain, maintain and enforce our intellectual property rights and, more generally, could affect the value of our intellectual property or narrow the scope of our protection. We cannot predict whether the patent applications we are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide sufficient protection against competitors or other third parties.

The patent prosecution process is expensive, time-consuming, and complex, and we may not be able to file, prosecute, maintain, enforce, or license all necessary or desirable patent applications at a reasonable cost or in a timely manner, including delays as a result of the COVID-19 pandemic. It is also possible that we will fail to identify patentable aspects of our research and development output in time to obtain patent protection. Although we enter into non-disclosure and confidentiality agreements with parties who have access to confidential or patentable aspects of our research and development output, such as our employees, third-party collaborators, CROs, CMOs, consultants, advisors and other third parties, any of these parties may breach the agreements and disclose such output before a patent application is filed, thereby jeopardizing our ability to seek patent protection. In addition, our ability to obtain and maintain valid and enforceable patents depends on whether the differences between our inventions and the prior art allow our inventions to be patentable in light of the prior art. Furthermore, publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we cannot be certain that we or our licensors were the first to invent the inventions claimed in any of our owned or licensed patents or pending patent applications, or that we or our licensors were the first to file for patent protection of such inventions.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions and has been the subject of much litigation in recent years. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Our owned and in-licensed patent applications may not result in patents being issued which protect our therapeutic programs and other proprietary technologies we may develop or which effectively prevent others from commercializing competitive technologies and products.

Moreover, the claim coverage in a patent application can be significantly reduced before the patent is granted. Even if our owned and in-licensed patent applications issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors or other third parties from competing with us or otherwise provide us with any competitive advantage. Any patents issuing from our owned and in-licensed patent applications may be challenged, narrowed, circumvented or invalidated by third parties. Consequently, we do not know whether our therapeutic programs and other proprietary technology will be protectable or remain protected by valid and enforceable patents. Even if a patent is granted, our competitors or other third parties may be able to circumvent the patent by developing similar or alternative technologies or products in a non-infringing manner which could materially adversely affect our business, financial condition, results of operations and prospects. In addition, given the amount of time required for the development, testing and regulatory review of our therapeutic programs and eventual product candidates, patents protecting the product candidates might expire before or shortly after such product candidates are commercialized. As a result, our intellectual property may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

The issuance of a patent is not conclusive as to its inventorship, scope, validity, or enforceability and our owned and in-licensed patents may be challenged in the courts or patent offices in the United States and abroad. We may be subject to a third-party pre-issuance submission of prior art to the USPTO or become involved in opposition, derivation, revocation,

reexamination, post-grant and inter partes review, or other similar proceedings challenging our patent rights. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate or render unenforceable, our patent rights, allow third parties to commercialize our therapeutic programs and other proprietary technologies we may develop and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third-party patent rights. Such proceedings also may result in substantial cost and require significant time from our scientists and management, even if the eventual outcome is favorable to us.

Moreover, some of our owned and in-licensed patent rights are, and may in the future be, co-owned with third parties. If we are unable to obtain an exclusive license to any such third-party co-owners' interest in such patent rights, such co-owners may be able to license their rights to other third parties, including our competitors, and our competitors could market competing products and technology. In addition, we may need the cooperation of any such co-owners of such patent rights in order to enforce such patent rights against third parties, and such cooperation may not be provided to us. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects.

Furthermore, our owned and in-licensed patent rights may be subject to a reservation of rights by one or more third parties. For example, the research resulting in certain of our patent rights and technology was funded in part by the US government. As a result, the government may have certain rights, or march-in rights, to such patent rights and technology. When new technologies are developed with government funding, the government generally obtains certain rights in any resulting patents, including a non-exclusive license authorizing the government to use the invention for non-commercial purposes. These rights may permit the government to disclose our confidential information to third parties and to exercise march-in rights to use or allow third parties to use our licensed technology. The government can exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of the government-funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to US industry. In addition, our rights in such inventions may be subject to certain requirements to manufacture products embodying such inventions in the United States. Any exercise by the government of such rights could harm our competitive position, business, financial condition, results of operations and prospects.

We may not be able to protect our intellectual property and proprietary rights throughout the world.

Filing, prosecuting and defending patents on our product candidates in all countries throughout the world would be prohibitively expensive, and the laws of foreign countries may not protect our intellectual property rights to the same extent as the laws of the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our intellectual property in and into the United States or other jurisdictions. Competitors may use our intellectual property in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we have patent protection but enforcement is not as strong as that in the United States. These products may compete with our products, and our owned and in-licensed patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property protection, particularly those relating to biotechnology products, which could make it difficult for us to stop the infringement of our owned and in-licensed patents or marketing of competing products in violation of our intellectual property and proprietary rights generally. In addition, some jurisdictions, such as Europe, Japan and China, may have a higher standard for patentability than in the United States, including, for example, the requirement of claims having literal support in the original patent filing and the limitation on using supporting data that is not in the original patent filing. Under those heightened patentability requirements, we may not be able to obtain sufficient patent protection in certain jurisdictions even though the same or similar patent protection can be secured in the United States and other jurisdictions.

Proceedings to enforce our intellectual property and proprietary rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our owned and in-licensed patents at risk of being invalidated or interpreted narrowly, could put our owned and in-licensed patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property and proprietary rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop.

Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition, results of operations and prospects may be adversely affected.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment, and other requirements imposed by government patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

The USPTO and various non-US government agencies require compliance with several procedural, documentary, fee payment and other similar provisions during the patent application process. In some circumstances, we are dependent on our licensors to take the necessary action to comply with these requirements with respect to our licensed intellectual property. For example, periodic maintenance fees, renewal fees, annuity fees, and various other government fees on patents and applications will be due to be paid to the USPTO and various government patent agencies outside of the United States over the lifetime of our owned or licensed patents and applications. In certain circumstances, we rely on our licensing partners to pay these fees due to US and non-US patent agencies. In some cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. There are situations, however, in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in a partial or complete loss of patent rights in the relevant jurisdiction. In such an event, potential competitors might be able to enter the market with similar or identical products or technology, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

The USPTO and various non-US. government agencies require compliance with certain foreign filing requirements during the patent application process. For example, in some countries, including the US, China, India and some European countries, a foreign filing license is required before certain patent applications are filed. The foreign filing license requirements vary by country and depend on various factors including where the inventive activity occurred, citizenship status of the inventors, the residency of the inventors and the invention owner, the place of business for the invention owner and the nature of the subject matter to be disclosed (e.g., items related to national security or national defense). In some cases, a foreign filing license may be obtained retroactively in accordance with the applicable rules. There are situations, however, in which non-compliance can result in abandonment of a pending patent application or can be grounds for revoking or invalidating an issued patent, resulting in the loss of patent rights in the relevant jurisdiction. In such an event, potential competitors might be able to enter the relevant markets with similar or identical products or technology, which could have a material adverse effect on our business, financial condition, results of operations, and prospects. We are also dependent on our licensors to take the necessary actions to comply with these requirements with respect to our licensed intellectual property. The Indian patent application covering ERAS-007 as composition of matter was filed without obtaining a foreign filing license from the Indian Patent Office. As such, any patent issuing from the pending patent application in India may be vulnerable to revocation by the Indian Patent Office or invalidity or unenforceability attacks by third parties.

The COVID-19 pandemic may impair our and our licensors' ability to comply with these procedural, document submission, fee payment, and other requirements imposed by government patent agencies, which may materially and adversely affect our ability to obtain or maintain patent protection for our products and product candidates.

Changes in US patent law could diminish the value of patents in general, thereby impairing our ability to protect our products.

Changes in either the patent laws or interpretation of the patent laws in the United States could increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of issued patents. Assuming that other requirements for patentability are met, prior to March 2013, in the United States, the first to invent the claimed invention was entitled to the patent, while outside the United States, the first to file a patent application was entitled to the patent. After March 2013, under the Leahy-Smith America Invents Act (the America Invents Act) enacted in September 2011, the United States transitioned to a first inventor to file system in which, assuming that other requirements for patentability are met, the first inventor to file a patent application will be entitled to the patent on an invention regardless of whether a third party was the first to invent the claimed invention. A third party that files a patent application in the USPTO after March 2013, but before us or our licensors could therefore be awarded a patent covering an invention of ours or our licensors even if we or our licensors had made the invention before it was made by such third party. This will require us to be cognizant going forward of the time from invention to filing of a patent application. Since patent applications in the

United States and most other countries are confidential for a period of time after filing or until issuance, we cannot be certain that we or our licensors were the first to either: (i) file any patent application related to our therapeutic programs and other proprietary technologies we may develop, or (ii) invent any of the inventions claimed in our patent applications.

The America Invents Act also includes a number of significant changes that affect the way patent applications will be prosecuted and also may affect patent litigation. These include allowing third party submission of prior art to the USPTO during patent prosecution and additional procedures to attack the validity of a patent by USPTO administered post-grant proceedings, including post-grant review, inter partes review and derivation proceedings. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in United States federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third party may attempt to use the USPTO procedures to invalidate our owned and in-licensed patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action. Therefore, the America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our owned and in-licensed patent applications and the enforcement or defense of patents issuing from those patent applications, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

In addition, the patent positions of companies in the development and commercialization of biologics and pharmaceuticals are particularly uncertain. Recent US Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. This combination of events has created uncertainty with respect to the validity and enforceability of patents, once obtained. Depending on future actions by the US Congress, the federal courts and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could have a material adverse effect on our existing patent portfolio and our ability to protect and enforce our intellectual property in the future.

Issued patents covering our product candidates could be found invalid or unenforceable if challenged in court or before administrative bodies in the United States or abroad.

If we initiated legal proceedings against a third party to enforce a patent covering our product candidates, the defendant could counterclaim that such patent is invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, non-enablement lack of sufficient written description or obviousness-type double patenting. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. Third parties may raise claims challenging the validity or enforceability of a patent before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, post-grant review, inter partes review, derivation proceedings, and equivalent proceedings in foreign jurisdictions (e.g., opposition proceedings). Such proceedings could result in the revocation of, cancellation of or amendment to our owned and in-licensed patents in such a way that they no longer cover our product candidates. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we or our licensing partners and the patent examiner were unaware during prosecution. If a third party were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our product candidates. Such a loss of patent protection would have a material adverse impact on our business, financial condition, results of operations and prospects.

Patent terms may be inadequate to protect our competitive position on products and product candidates for an adequate amount of time.

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest US non-provisional or international patent application filing date. Various extensions may be available, but the life of a patent, and the protection it affords, is limited. Even if patents covering our product candidates are obtained, once the patent has expired, we may be vulnerable to competition from competitive products, including generics or biosimilars. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such product candidates might expire before or shortly after such product candidates are commercialized. As a result, our owned and in-licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

If we do not obtain patent term extension for our product candidates, our business may be materially harmed.

Depending upon the timing, duration and specifics of any FDA marketing approval of any of our product candidates, one or more of our owned and in-licensed issued US patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Action of 1984 (Hatch-Waxman Amendments). The Hatch-Waxman Amendments permit a patent term extension of up to five years as compensation for patent term lost during the FDA regulatory review process. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent may be extended and only those claims covering the approved drug, a method for using it or a method for manufacturing it may be extended. Similar patent term restoration provisions to compensate for commercialization delay caused by regulatory review are also available in certain foreign jurisdictions, such as in Europe under Supplemental Protection Certificate. However, we may not be granted an extension because of, for example, failing to exercise due diligence during the testing phase or regulatory review process, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents, or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain patent term extension or term of any such extension is less than we request, our competitors may obtain approval of competing products following our patent expiration, and our business, financial condition, results of operations and prospects could be materially harmed.

We may be subject to claims challenging the inventorship of our patents and other intellectual property.

We may be subject to claims that former employees, collaborators or other third parties have an interest in our patent rights, trade secrets, or other intellectual property as an inventor or co-inventor. For example, we may have inventorship disputes arise from conflicting obligations of consultants or others who are involved in developing our therapeutic programs and other proprietary technologies we may develop. Litigation may be necessary to defend against these and other claims challenging inventorship or our patent rights, trade secrets or other intellectual property. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, intellectual property that is important to our therapeutic programs and other proprietary technologies we may develop. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to our management and other employees. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to seeking patent protection for our product candidates, we also rely on trade secrets and confidentiality agreements to protect our unpatented know-how, technology, and other proprietary information and to maintain our competitive position. We seek to protect these trade secrets and other proprietary technology, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as our employees, third-party collaborators, CROs, CMOs, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants. We cannot guarantee that we have entered into such agreements with each party that may have or have had access to our trade secrets or proprietary technology and processes. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor or other third party, we would have no right to prevent them from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor or other third party, our competitive position would be materially and adversely harmed.

We may be subject to claims that third parties have an ownership interest in our trade secrets. For example, we may have disputes arise from conflicting obligations of our employees, consultants or others who are involved in developing our product candidate. Litigation may be necessary to defend against these and other claims challenging ownership of our trade secrets. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable trade secret rights, such as exclusive ownership of, or right to use, trade secrets that are important to our therapeutic programs and other proprietary technologies we may develop. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to our management and other employees. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

We may be subject to claims that our employees, consultants or advisors have wrongfully used or disclosed alleged trade secrets of their current or former employers or claims asserting ownership of what we regard as our own intellectual property.

Some of our employees, consultants and advisors are currently or were previously employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants and advisors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these individuals have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such individual's current or former employer. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to our management.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Such claims could have a material adverse effect on our business, financial condition, results of operations and prospects.

We may not identify relevant third-party patents or may incorrectly interpret the relevance, scope or expiration of a third-party patent, which might adversely affect our ability to develop and market our products and product candidates.

We cannot guarantee that any of our patent searches or analyses, including the identification of relevant patents, the scope of patent claims or the expiration of relevant patents, are complete or thorough, nor can we be certain that we have identified each and every third-party patent and pending patent application in the United States and abroad that is relevant to or necessary for the commercialization of our current and future products and product candidates in any jurisdiction. The scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Our interpretation of the relevance or the scope of a patent or a pending patent application may be incorrect, which may negatively impact our ability to market our products. We may incorrectly determine that our products or product candidates are not covered by a third-party patent or may incorrectly predict whether a third party's pending patent application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or abroad that we consider relevant may be incorrect, and our failure to identify and correctly interpret relevant patents may negatively impact our ability to develop and market our products. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Third-party claims of intellectual property infringement, misappropriation or other violations against us or our collaborators may prevent or delay the development and commercialization of our product candidates.

Our commercial success depends in part on our ability to avoid infringing, misappropriating and otherwise violating the patents and other intellectual property rights of third parties. There is a substantial amount of complex litigation involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries, as well as administrative proceedings for challenging patents, including interference, derivation and reexamination proceedings before the USPTO or oppositions and other comparable proceedings in foreign jurisdictions. As discussed above, recently, due to changes in US law referred to as patent reform, new procedures including inter partes review and post-grant review have also been implemented. As stated above, this reform adds uncertainty to the possibility of challenge to our owned and in-licensed patents in the future.

Numerous US and foreign issued patents and pending patent applications owned by third parties exist in the fields in which we are commercializing or plan to commercialize our therapeutic and diagnostic programs and in which we are developing other proprietary technologies. As the biotechnology and pharmaceutical industries expand and more patents are issued, and as we gain greater visibility and market exposure as a public company, the risk that our therapeutic and diagnostic programs and commercializing activities may give rise to claims of infringement of the patent rights of others increases. We cannot assure you that our therapeutic programs and other proprietary technologies we may develop will not infringe existing or future patents owned by third parties. We may not be aware of patents that have already been issued and that a third party, including a competitor in the fields in which we are developing our therapeutic programs,

might assert as infringed by us. It is also possible that patents owned by third parties of which we are aware, but which we do not believe we infringe or that we believe we have valid defenses to any claims of patent infringement, could be found to be infringed by us. It is not unusual that corresponding patents issued in different countries have different scopes of coverage, such that in one country a third-party patent does not pose a material risk, but in another country, the corresponding third-party patent may pose a material risk to our products or product candidates. As such, we monitor third-party patents in the relevant pharmaceutical markets. In addition, because patent applications can take many years to issue, there may be currently pending patent applications that may later result in issued patents that we may infringe.

In the event that any third-party claims that we infringe their patents or that we are otherwise employing their proprietary technology without authorization and initiates litigation against us, even if we believe such claims are without merit, a court of competent jurisdiction could hold that such patents are valid, enforceable and infringed by us. Defense of infringement claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of management and other employee resources from our business, and may impact our reputation. In the event of a successful claim of infringement against us, we may be enjoined from further developing or commercializing the infringing products or technologies. In addition, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties and/or redesign our infringing products or technologies, which may be impossible or require substantial time and monetary expenditure. Such licenses may not be available on commercially reasonable terms or at all. Even if we are able to obtain a license, the license would likely obligate us to pay license fees or royalties or both, and the rights granted to us might be nonexclusive, which could result in our competitors gaining access to the same intellectual property. If we are unable to obtain a necessary license to a third-party patent on commercially reasonable terms, we may be unable to commercialize the infringing products or technologies or such commercialization efforts may be significantly delayed, which could in turn significantly harm our business. In addition, we may in the future pursue patent challenges with respect to third-party patents, including as a defense against the foregoing infringement claims. The outcome of such challenges is unpredictable.

Even if resolved in our favor, the foregoing proceedings could be very expensive, particularly for a company of our size, and time-consuming. Such proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. We may not have sufficient financial or other resources to conduct such proceedings adequately. Some of our competitors may be able to sustain the costs of litigation or administrative proceedings more effectively than we can because of greater financial resources. Such legal proceedings may also absorb significant time of our technical and management personnel and distract them from their normal responsibilities. Uncertainties resulting from such proceedings could impair our ability to compete in the marketplace. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. The occurrence of any of the foregoing could have a material adverse effect on our business, financial condition or results of operations.

We may become involved in lawsuits to protect or enforce our owned and in-licensed patents and other intellectual property rights, which could be expensive, time-consuming and unsuccessful.

Third parties, such as a competitor, may infringe our patent rights. In an infringement proceeding, a court may decide that a patent owned by us is invalid or unenforceable or may refuse to stop the other party from using the invention at issue on the grounds that the patent does not cover the technology in question. In addition, our patent rights may become involved in inventorship, priority or validity disputes. To counter or defend against such claims can be expensive and time-consuming. An adverse result in any litigation proceeding could put our patent rights at risk of being invalidated or interpreted narrowly. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses and could distract our personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. Uncertainties resulting from the initiation and

continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

Our registered or unregistered trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. During trademark registration proceedings, we may receive rejections of our applications by the USPTO or in other foreign jurisdictions. Although we are given an opportunity to respond to such rejections, we may be unable to overcome them. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, which may not survive such proceedings. Moreover, any name we have proposed to use with our product candidate in the United States must be approved by the FDA, regardless of whether we have registered it, or applied to register it, as a trademark. Similar requirements exist in Europe. The FDA typically conducts a review of proposed product names, including an evaluation of potential for confusion with other product names. If the FDA or an equivalent administrative body in a foreign jurisdiction objects to any of our proposed proprietary product names, we may be required to expend significant additional resources in an effort to identify a suitable substitute name that would qualify under applicable trademark laws, not infringe the existing rights of third parties and be acceptable to the FDA. Furthermore, in many countries, owning and maintaining a trademark registration may not provide an adequate defense against a subsequent infringement claim asserted by the owner of a senior trademark.

We may not be able to protect our rights to these trademarks and trade names, which we need to build name recognition among potential partners or customers in our markets of interest. At times, competitors or other third parties may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively and our business may be adversely affected. Our efforts to enforce or protect our proprietary rights related to trademarks, trade names, domain name or other intellectual property may be ineffective and could result in substantial costs and diversion of resources and could adversely affect our business, financial condition, results of operations and prospects.

Intellectual property rights do not necessarily address all potential threats.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations and may not adequately protect our business or permit us to maintain our competitive advantage. For example:

- others may be able to make products that are similar to our product candidates or utilize similar technology but that are not covered by the claims of the patents that we license or may own;
- we or our licensors or collaborators might not have been the first to make the inventions covered by our current or future patent applications;
- we or our licensors or collaborators might not have been the first to file patent applications covering our inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- it is possible that the pending and future patent applications we own or in-license will not lead to issued patents;
- issued patents that we own or in-license may be held invalid or unenforceable, including as a result of legal challenges by our competitors or other third parties;
- our competitors or other third parties might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may not develop additional proprietary technologies that are patentable;

- we may fail to identify potential patentable subject matter and/or may fail to file on it;
- the patents of others may harm our business; and
- we may choose not to file for patent protection in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent application covering such intellectual property.

Should any of the foregoing occur, it could adversely affect our business, financial condition, results of operations and prospects.

We partially depend on intellectual property licensed from third parties, and our licensors may not always act in our best interest. If we fail to comply with our obligations under our intellectual property licenses, if the licenses are terminated or if disputes regarding these licenses arise, we could lose significant rights that are important to our business.

We are dependent, in part, on patents, know-how and proprietary technology licensed from others. We are a party to a number of license agreements under which we are granted rights to intellectual property that are important to our business and we may enter into additional license agreements in the future. Our existing license agreements impose, and we expect that any future license agreements where we in-license intellectual property, will impose on us, various development, regulatory and/or commercial diligence obligations, payment of milestones and/or royalties and other obligations. If we fail to comply with our obligations under these agreements, or we are subject to bankruptcy-related proceedings, the licensor may have the right to terminate the license, in which event we would not be able to develop or market products covered by the license.

If we or our licensors fail to adequately protect our licensed intellectual property, our ability to commercialize product candidates could suffer. We do not have complete control over the maintenance, prosecution and litigation of our in-licensed patents and patent applications and may have limited control over future intellectual property that may be in-licensed. For example, we cannot be certain that activities such as the maintenance and prosecution by our licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents and other intellectual property rights. It is possible that our licensors' infringement proceedings or defense activities may be less vigorous than had we conducted them ourselves or may not be conducted in accordance with our best interests.

In addition, the agreements under which we license intellectual property or technology from third parties are complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant patents, know-how and proprietary technology, or increase what we believe to be our financial or other obligations under the relevant agreement. Disputes that may arise between us and our licensors regarding intellectual property subject to a license agreement could include disputes regarding:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether and the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- our right to sublicense patent and other rights to third parties under collaborative development relationships;
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates and what activities satisfy those diligence obligations; and
- the inventorship and ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on reasonable terms, we may be unable to successfully develop and commercialize the affected technology or product candidates. As a result, any termination of or disputes over our intellectual property licenses could result in the loss of our ability to develop and commercialize our product candidates, or we could lose other significant rights, any of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

For example, our agreements with certain of our third-party research partners provide that improvements developed in the course of our relationship may be owned solely by either us or our third-party research partner, or jointly between us and the third party. If we determine that rights to such improvements owned solely by a research partner or other third party with whom we collaborate are necessary to commercialize our product candidates or maintain our competitive advantage, we may need to obtain a license from such third party in order to use the improvements and continue developing, manufacturing or marketing our product candidates. We may not be able to obtain such a license on an exclusive basis, on commercially reasonable terms, or at all, which could prevent us from commercializing our product candidates or allow our competitors or others the chance to access technology that is important to our business. We also may need the cooperation of any co-owners of our intellectual property in order to enforce such intellectual property against third parties, and such cooperation may not be provided to us.

We may not be successful in obtaining or maintaining necessary rights to product components and processes for our development pipeline through acquisitions and in-licenses.

The growth of our business may depend in part on our ability to acquire, in-license or use third-party proprietary rights. For example, our product candidates may require specific formulations to work effectively and efficiently, we may develop product candidates containing our compounds and pre-existing pharmaceutical compounds, or we may be required by the FDA or comparable foreign regulatory authorities to provide a companion diagnostic test or tests with our product candidates, any of which could require us to obtain rights to use intellectual property held by third parties. In addition, with respect to any patents we may co-own with third parties, we may require licenses to such co-owner's interest to such patents. We may be unable to acquire or in-license any compositions, methods of use, processes or other third-party intellectual property rights from third parties that we identify as necessary or important to our business operations. In addition, we may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. Were that to happen, we may need to cease use of the compositions or methods covered by those third-party intellectual property rights, and may need to seek to develop alternative approaches that do not infringe on those intellectual property rights, which may entail additional costs and development delays, even if we were able to develop such alternatives, which may not be feasible. Even if we are able to obtain a license, it may be non-exclusive, which means that our competitors may also receive access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to develop or license replacement technology.

Additionally, we sometimes collaborate with academic institutions to accelerate our preclinical research or development under written agreements with these institutions. In certain cases, these institutions provide us with an option to negotiate a license to any of the institution's rights in technology resulting from the collaboration. Even if we hold such an option, we may be unable to negotiate a license from the institution within the specified timeframe or under terms that are acceptable to us. If we are unable to do so, the institution may offer the intellectual property rights to others, potentially blocking our ability to pursue our program.

The licensing and acquisition of third-party intellectual property rights is a competitive area, and companies that may be more established or have greater resources than we do may also be pursuing strategies to license or acquire third-party intellectual property rights that we may consider necessary or attractive in order to commercialize our product candidates. More established companies may have a competitive advantage over us due to their size, cash resources and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. There can be no assurance that we will be able to successfully complete these types of negotiations and ultimately acquire the rights to the intellectual property surrounding the additional product candidates that we may seek to develop or market. If we are unable to successfully obtain rights to required third-party intellectual property or to maintain the existing intellectual property rights we have, we may have to abandon development of certain programs and our business financial condition, results of operations and prospects could suffer.

We and our service providers may be subject to a variety of privacy and data security laws and contractual obligations, which could increase compliance costs and our actual or perceived failure to comply with them could subject us to potentially significant fines or penalties, harm our reputation and otherwise harm our business.

We maintain a large quantity of sensitive information, including confidential business and health-related information in connection with our preclinical studies, and are subject to laws and regulations governing the privacy and security of such information. The global data protection landscape is rapidly evolving, and we may be affected by or subject to new, amended or existing laws and regulations in the future, including as our operations continue to expand or if we operate in foreign jurisdictions. This evolution may create uncertainty in our business, affect our ability to operate in certain jurisdictions or to collect, store, transfer use and share personal information, necessitate the acceptance of more onerous

obligations in our contracts, result in liability or impose additional costs on us. The cost of compliance with these laws, regulations and standards is high and is likely to increase in the future. Any failure or perceived failure by us to comply with federal, state or foreign laws or regulations, our internal policies and procedures or our contracts governing our processing of personal information could result in negative publicity, government investigations and enforcement actions, claims by third parties and damage to our reputation, any of which could have a material adverse effect on our business, results of operation, and financial condition.

In the United States, there are numerous federal and state privacy and data security laws and regulations governing the collection, use, disclosure and protection of personal information, including health information privacy laws, security breach notification laws and consumer protection laws. Each of these laws is subject to varying interpretations and constantly evolving. By way of example, HIPAA imposes privacy and security requirements and breach reporting obligations with respect to individually identifiable health information upon “covered entities” (health plans, health care clearinghouses and certain health care providers), and their respective business associates and subcontractors, individuals or entities that create, receive, maintain or transmit protected health information in connection with providing a service for or on behalf of a covered entity, as well as their covered subcontractors. We do not believe that we are currently acting as a covered entity or business associate under HIPAA and thus are not directly subject to its requirements or penalties. However, we may obtain health information from third parties (including research institutions from which we obtain clinical trial data) that are subject to privacy and security requirements under HIPAA. Depending on the facts and circumstances, we could be subject to significant penalties if we violate HIPAA.

In addition, certain state laws govern the privacy and security of health-related information, some of which are more stringent than HIPAA and many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts. Certain states have also adopted comparable privacy and security laws and regulations governing the privacy, processing and protection of personal information. For example, the California Consumer Privacy Act (CCPA), which went into effect on January 1, 2020, gives California residents expanded rights to access and delete their personal information, opt out of certain personal information sharing, and receive detailed information about how their personal information is used. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that is expected to increase data breach litigation. The CCPA may increase our compliance costs and potential liability. Further, California voters recently approved the California Privacy Rights Act of 2020 (CPRA) that goes into effect on January 1, 2023. The CPRA significantly amends the CCPA and will impose additional data protection obligations on covered businesses, including additional consumer rights processes, limitations on data uses, new audit requirements for higher risk data, and opt outs for certain uses of sensitive data. It will also create a new California data protection agency authorized to issue substantive regulations and could result in increased privacy and information security enforcement. Similar laws have passed in Virginia and Colorado, and have been proposed in other states and at the federal level, reflecting a trend toward more stringent privacy legislation in the United States. The enactment of such laws could have potentially conflicting requirements that would make compliance challenging. In the event that we are subject to or affected by HIPAA, the CCPA, the CPRA or other domestic privacy and data protection laws, any liability from failure to comply with the requirements of these laws could adversely affect our financial condition.

In Europe, the General Data Protection Regulation (GDPR) went into effect in May 2018. The GDPR governs the collection, use, disclosure, transfer or other processing of personal data of individuals within the EEA. Among other things, the GDPR requires the establishment of a lawful basis for the processing of data, imposes requirements relating to the consent of the individuals to whom the personal data relates, including detailed notices for clinical trial subjects and investigators, as well as requirements regarding the security of personal data and notification of data processing obligations to the competent national data processing authorities. In addition, the GDPR increases the scrutiny of transfers of personal data from clinical trial sites located in the EEA to the United States and other jurisdictions that the European Commission does not recognize as having “adequate” data protection laws. The GDPR imposes substantial fines for breaches and violations (up to the greater of €20 million or 4% of consolidated annual worldwide gross revenue). The GDPR also confers a private right of action on data subjects and consumer associations to lodge complaints with supervisory authorities, seek judicial remedies and obtain compensation for damages resulting from violations of the GDPR.

Recent legal developments in Europe have created complexity and uncertainty regarding transfers of personal data from the EEA to the United States. For example, on July 16, 2020, the Court of Justice of the European Union (CJEU) limited how organizations could lawfully transfer personal data from the EEA to the United States by invalidating the Privacy Shield for purposes of international transfers and imposing further restrictions on the use of standard contractual clauses (SCCs). The European Commission issued revised SCCs on June 4, 2021 to account for the decision of the CJEU and recommendations made by the European Data Protection Board. The revised SCCs must be used for relevant new data transfers from September 27, 2021; existing standard contractual clauses arrangements must be migrated to the revised

clauses by December 27, 2022. The new SCCs apply only to the transfer of personal data outside of the EEA and not the United Kingdom (UK); the UK's Information Commissioner's Office launched a public consultation on its draft revised data transfers mechanisms in August 2021. There is some uncertainty around whether the revised clauses can be used for all types of data transfers, particularly whether they can be relied on for data transfers to non-EEA entities subject to the GDPR. As supervisory authorities issue further guidance on personal data export mechanisms, including circumstances where the SCCs cannot be used, and/or start taking enforcement action, we could suffer additional costs, complaints and/or regulatory investigations or fines, and/or if we are otherwise unable to transfer personal data between and among countries and regions in which we operate, it could affect the manner in which we provide our services, the geographical location or segregation of our relevant systems and operations, and could adversely affect our financial results.

Further, from January 1, 2021, companies have had to comply with the GDPR and also the UK GDPR, which, together with the amended UK Data Protection Act 2018, retains the GDPR in UK national law. The UK GDPR mirrors the fines under the GDPR, i.e., fines up to the greater of €20 million (£17.5 million) or 4% of global turnover. The relationship between the UK and the EU in relation to certain aspects of data protection law remains unclear, and it is unclear how UK data protection laws and regulations will develop in the medium to longer term. The European Commission has adopted an adequacy decision in favor of the UK, enabling data transfers from EU member states to the UK without additional safeguards. However, the UK adequacy decision will automatically expire in June 2025 unless the European Commission re-assesses and renews or extends that decision.

Although we work to comply with applicable laws, regulations and standards, our contractual obligations and other legal obligations, these requirements are evolving and may be modified, interpreted and applied in an inconsistent manner from one jurisdiction to another, and may conflict with one another or other legal obligations with which we must comply. Any failure or perceived failure by us or our employees, representatives, contractors, consultants, collaborators, or other third parties to comply with such requirements or adequately address privacy and security concerns, even if unfounded, could result in additional cost and liability to us, damage our reputation, and adversely affect our business and results of operations.

Risks related to ownership of our common stock

The trading price of the shares of our common stock has been, and is likely to continue to be highly volatile, and purchasers of our common stock could incur substantial losses.

Our stock price has been, and is likely to continue to be, volatile. The stock market in general and the market for stock of biopharmaceutical companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, investors may not be able to sell their common stock at or above the price at which they paid. The market price for our common stock may be influenced by those factors discussed in this "Risk factors" section and many others, including:

- results of our clinical trials and preclinical studies, and the results of trials of our competitors or those of other companies in our market sector;
- our ability to enroll subjects in our future clinical trials;
- regulatory approval of our product candidates, or limitations to specific label indications or patient populations for its use, or changes or delays in the regulatory review process;
- regulatory or legal developments in the United States and other countries;
- changes in the structure of healthcare payment systems;
- the success or failure of our efforts to develop, acquire or license additional product candidates;
- innovations, clinical trial results, product approvals and other developments regarding our competitors;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;
- manufacturing, supply or distribution delays or shortages;
- any changes to our relationship with any manufacturers, suppliers, collaborators or other strategic partners;
- achievement of expected product sales and profitability;

- variations in our financial results or those of companies that are perceived to be similar to us, or fluctuations in the valuation of such other companies;
- market conditions in the biopharmaceutical sector and issuance of securities analysts' reports or recommendations;
- trading volume of our common stock;
- an inability to obtain additional funding;
- sales of our stock by us, our insiders and our other stockholders;
- the impact of any natural disasters or public health emergencies, such as the COVID-19 pandemic;
- general economic, industry and market conditions other events or factors, many of which are beyond our control;
- additions or departures of key personnel;
- intellectual property, product liability or other litigation against us;
- actual or anticipated changes in estimates as to financial results, development timelines, or recommendations by securities analysts;
- expiration of market stand-off or lock-up agreements;
- changes in our capital structure, such as future issuances of securities and the incurrence of additional debt; and
- changes in accounting standards, policies, guidelines, interpretations or principles.

In addition, in the past, stockholders have initiated class action lawsuits against biopharmaceutical companies following periods of volatility in the market prices of these companies' stock. Such litigation, if instituted against us, could cause us to incur substantial costs and divert our management's attention and resources, which could have a material adverse effect on our business, financial condition and results of operations.

An active, liquid trading market for our common stock may not be maintained.

We can provide no assurance that we will be able to maintain an active trading market for our common stock. The lack of an active market may impair your ability to sell your shares at the time you wish to sell them or at a price that you consider reasonable. An inactive market may also impair our ability to raise capital by selling shares and may impair our ability to acquire other businesses or technologies using our shares as consideration, which, in turn, could materially adversely affect our business.

Our executive officers, directors and principal stockholders, if they choose to act together, will continue to have the ability to significantly influence all matters submitted to stockholders for approval.

As of December 31, 2021, our executive officers, directors and greater than 5% stockholders, in the aggregate, owned approximately 51% of our outstanding common stock. As a result, such persons, acting together, have the ability to significantly influence all matters submitted to our board of directors or stockholders for approval, including the appointment of our management, the election and removal of directors and approval of any significant transaction, as well as our management and business affairs. This concentration of ownership may have the effect of delaying, deferring or preventing a change in control, impeding a merger, consolidation, takeover or other business combination involving us, or discouraging a potential acquiror from making a tender offer or otherwise attempting to obtain control of our business, even if such a transaction would benefit other stockholders.

We do not currently intend to pay dividends on our common stock, and, consequently, your ability to achieve a return on your investment will depend on appreciation, if any, in the price of our common stock.

We have never declared or paid any cash dividend on our common stock. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. In addition, any future debt agreements may preclude us from paying dividends. Any return to stockholders will therefore be limited to the appreciation of their stock. There is no guarantee that shares of our common stock will appreciate in value or even maintain the price at which stockholders have purchased their shares.

Sales of a substantial number of shares of our common stock by our existing stockholders in the public market could cause our stock price to fall.

Sales of a substantial number of shares of our common stock in the public market or the perception that these sales might occur could significantly reduce the market price of our common stock and impair our ability to raise adequate capital through the sale of additional equity securities.

The holders of 71,263,685 shares of our outstanding common stock, or approximately 58.7% of our total outstanding common stock as of December 31, 2021, are entitled to rights with respect to the registration of their shares under the Securities Act. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares held by affiliates, as defined in Rule 144 under the Securities Act. Any sales of securities by these stockholders, or the registration of such shares, could have a material adverse effect on the trading price of our common stock.

We are an emerging growth company and a smaller reporting company, and the reduced disclosure requirements applicable to emerging growth companies and smaller reporting companies may make our common stock less attractive to investors.

We are an emerging growth company, as defined in the JOBS Act, and may remain an emerging growth company until the last day of the fiscal year following the fifth anniversary of the completion of our IPO. However, if certain events occur prior to the end of such five-year period, including if we become a large accelerated filer, as defined under the Exchange Act, our annual gross revenue exceed $1.07 billion or we issue more than $1.0 billion of non-convertible debt in any three-year period, we will cease to be an emerging growth company prior to the end of such five-year period. For so long as we remain an emerging growth company, we are permitted and intend to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies. These exemptions include:

- being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced “Management’s discussion and analysis of financial condition and results of operations” disclosure;
- not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting pursuant to Sarbanes-Oxley;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor’s report providing additional information about the audit and the financial statements, unless the SEC determines the new rules are necessary for protecting the public;
- reduced disclosure obligations regarding executive compensation; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved.

We cannot predict whether investors will find our common stock less attractive if we rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be reduced or more volatile. In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of these accounting standards until they would otherwise apply to private companies. We have elected to avail ourselves of this exemption and, therefore, we will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

We are also a smaller reporting company as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as: (i) our voting and non-voting common stock held by non-affiliates is less than $250.0 million measured on the last business day of our second fiscal quarter, or (ii) our annual revenue is less than $100.0 million during the most recently completed fiscal year and the market value of our voting and non-voting common stock held by non-affiliates is less than $700.0 million measured on the last business day of our second fiscal quarter.

Provisions in our charter documents and under Delaware law could discourage a takeover that stockholders may consider favorable and may lead to entrenchment of management.

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that could significantly reduce the value of our shares to a potential acquiror or delay or prevent changes in control or changes in our management without the consent of our board of directors. The provisions in our charter documents include the following:

- a classified board of directors with three-year staggered terms, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- the exclusive right of our board of directors, unless the board of directors grants such right to the stockholders, to elect a director to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- the required approval of at least 66-2/3% of the shares entitled to vote to remove a director for cause, and the prohibition on removal of directors without cause;
- the ability of our board of directors to authorize the issuance of shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquiror;
- the ability of our board of directors to alter our amended and restated bylaws without obtaining stockholder approval;
- the required approval of at least 66-2/3% of the shares entitled to vote to adopt, amend or repeal our amended and restated bylaws or repeal the provisions of our amended and restated certificate of incorporation regarding the election and removal of directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- an exclusive forum provision providing that the Court of Chancery of the State of Delaware will be the exclusive forum for certain actions and proceedings;
- the requirement that a special meeting of stockholders may be called only by the board of directors, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors; and
- advance notice procedures that stockholders must comply with in order to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquiror from conducting a solicitation of proxies to elect the acquiror's own slate of directors or otherwise attempting to obtain control of us.

We are also subject to the anti-takeover provisions contained in Section 203 of the Delaware General Corporation Law. Under Section 203, a corporation may not, in general, engage in a business combination with any holder of 15% or more of its capital stock unless the holder has held the stock for three years or, among other exceptions, the board of directors has approved the transaction.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders and that the federal district courts shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees or the underwriters or any offering giving rise to such claim.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty, any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws, or any action asserting a claim against us that is governed by the internal affairs doctrine, provided that this provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, our amended and restated certificate of incorporation also

provides that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act, including all causes of action asserted against any defendant named in such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering. These choice of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees and result in increased costs for investors to bring a claim. By agreeing to this provision, however, stockholders will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder. Furthermore, the enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable. If a court were to find the choice of forum provisions in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition.

General risk factors

We incur significant costs as a result of operating as a public company, and our management is required to devote substantial time to new compliance initiatives.

As a public company, we incur significant legal, accounting and other expenses that we did not incur as a private company. We are subject to the reporting requirements of the Exchange Act, which require, among other things, that we file with the SEC annual, quarterly and current reports with respect to our business and financial condition. In addition, Sarbanes-Oxley, as well as rules subsequently adopted by the SEC and Nasdaq to implement provisions of Sarbanes-Oxley, impose significant requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. Further, pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, the SEC has adopted additional rules and regulations in these areas, such as mandatory "say on pay" voting requirements that will apply to us when we cease to be an emerging growth company. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact the manner in which we operate our business in ways we cannot currently anticipate.

We expect the rules and regulations applicable to public companies to substantially increase our legal and financial compliance costs and to make some activities more time-consuming and costly. If these requirements divert the attention of our management and personnel from other business concerns, they could have a material adverse effect on our business, financial condition and results of operations. The increased costs will decrease our net income or increase our net loss, and may require us to reduce costs in other areas of our business or increase the prices of our products or services. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance, and we may be required to incur substantial costs to maintain the same or similar coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers.

We are subject to US and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws and anti-money laundering laws and regulations. We could face criminal liability and other serious consequences for violations, which could harm our business.

We are subject to export control and import laws and regulations, including the US Export Administration Regulations, US Customs regulations, and various economic and trade sanctions regulations administered by the US Treasury Department's Office of Foreign Assets Controls, and anti-corruption and anti-money laundering laws and regulations, including the US Foreign Corrupt Practices Act of 1977, as amended, the US domestic bribery statute contained in 18 U.S.C. § 201, the US Travel Act, the USA PATRIOT Act and other state and national anti-bribery and anti-money laundering laws in the countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, CROs, contractors and other collaborators and partners from authorizing, promising, offering, providing, soliciting or receiving, directly or indirectly, improper payments or anything else of value to or from recipients in the public or private sector. We may engage third parties for clinical trials outside of the United

States, to sell our products abroad once we enter a commercialization phase, and/or to obtain necessary permits, licenses, patent registrations and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, CROs, contractors and other collaborators and partners, even if we do not explicitly authorize or have actual knowledge of such activities.

We are also subject to other US laws and regulations governing export controls, as well as economic sanctions and embargoes on certain countries and persons.

Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm and other consequences.

Furthermore, U.S. export control laws and economic sanctions prohibit the provision of certain products and services to countries, governments, and persons targeted by U.S. sanctions. U.S. sanctions that have been or may be imposed as a result of military conflicts in other countries may impact our ability to continue activities at future clinical trial sites within regions covered by such sanctions. If we fail to comply with export and import regulations and such economic sanctions, penalties could be imposed, including fines and/or denial of certain export privileges. These export and import controls and economic sanctions could also adversely affect our supply chain.

We and any of our third-party manufacturers or suppliers may use potent chemical agents and hazardous materials, and any claims relating to improper handling, storage or disposal of these materials could be time-consuming or costly.

We and any of our third-party manufacturers or suppliers and current or potential future collaborators will use biological materials, potent chemical agents and may use hazardous materials, including chemicals and biological agents and compounds that could be dangerous to human health and safety of the environment. Our operations and the operations of our third-party manufacturers and suppliers also produce hazardous waste products. Federal, state and local laws and regulations govern the use, generation, manufacture, storage, handling and disposal of these materials and wastes. Compliance with applicable environmental laws and regulations may be expensive, and current or future environmental laws and regulations may impair our product development efforts. In addition, we cannot eliminate the risk of accidental injury or contamination from these materials or wastes. We do not carry specific biological or hazardous waste insurance coverage, and our property, casualty and general liability insurance policies specifically exclude coverage for damages and fines arising from biological or hazardous waste exposure or contamination. In the event of contamination or injury, we could be held liable for damages or be penalized with fines in an amount exceeding our resources, and our clinical trials or regulatory approvals could be suspended. Although we maintain workers' compensation insurance for certain costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials or other work-related injuries, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for toxic tort claims that may be asserted against us in connection with our storage or disposal of biologic, hazardous or radioactive materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations, which have tended to become more stringent over time. These current or future laws and regulations may impair our research, development or production efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions or liabilities, which could materially adversely affect our business, financial condition, results of operations and prospects.

Business disruptions could seriously harm our future revenue and financial condition and increase our costs and expenses.

Our operations could be subject to earthquakes, power shortages, telecommunications failures, water shortages, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics and other natural or manmade disasters or business interruptions, for which we are predominantly self-insured. We rely on third-party manufacturers to produce our product candidates. Our ability to obtain clinical supplies of our product candidates could be disrupted if the operations of these suppliers were affected by a man-made or natural disaster or other business interruption. In addition, our corporate headquarters is located in San Diego, California near major earthquake faults and fire zones, and the ultimate impact on us of being located near major earthquake faults and fire zones and being consolidated in a certain geographical area is unknown. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses.

Unstable market and economic conditions may have serious adverse consequences on our business, financial condition and stock price.

From time to time, the global credit and financial markets have experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. The financial markets and the global economy may also be adversely affected by the current or anticipated impact of military conflict, including the conflict between Russia and Ukraine, terrorism or other geopolitical events. Sanctions imposed by the United States and other countries in response to such conflicts, including the one in Ukraine, may also adversely impact the financial markets and the global economy, and any economic countermeasures by the affected countries or others could exacerbate market and economic instability. There can be no assurance that future deterioration in credit and financial markets and confidence in economic conditions will not occur. Our general business strategy may be adversely affected by any such economic downturn, volatile business environment or continued unpredictable and unstable market conditions. If the current equity and credit markets deteriorate, it may make any necessary debt or equity financing more difficult, more costly and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance and stock price and could require us to delay or abandon clinical development plans. In addition, there is a risk that one or more of our current service providers, manufacturers and other partners may not survive an economic downturn, which could directly affect our ability to attain our operating goals on schedule and on budget.

Changes in tax law may materially adversely affect our financial condition, results of operations and cash flows.

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, or interpreted, changed, modified or applied adversely to us, any of which could adversely affect our business operations and financial performance. In particular, the U.S. government may enact significant changes to the taxation of business entities including, among others, an increase in the corporate income tax rate and the imposition of minimum taxes or surtaxes on certain types of income. The likelihood of these changes being enacted or implemented is unclear. We are currently unable to predict whether such changes will occur. If such changes are enacted or implemented, we are currently unable to predict the ultimate impact on our business. We urge our investors to consult with their legal and tax advisors with respect to any changes in tax law and the potential tax consequences of investing in our common stock.

If securities or industry analysts do not publish research or reports or publish unfavorable research or reports about our business, our stock price and trading volume could decline.

The trading market for our common stock depends in part on the research and reports that securities or industry analysts publish about us, our business, our market or our competitors. If no securities or industry analysts commence or continue coverage of our company, the trading price for our stock would be negatively impacted. In the event we obtain securities or industry analyst coverage, if one or more of the analysts who covers us downgrades our stock, our stock price would likely decline. If one or more of these analysts ceases to cover us or fails to regularly publish reports on us, interest in our stock could decrease, which could cause our stock price or trading volume to decline.

If we fail to maintain proper and effective internal control over financial reporting, our ability to produce accurate and timely financial statements could be impaired, investors may lose confidence in our financial reporting and the trading price of our common stock may decline.

Pursuant to Section 404 of Sarbanes-Oxley, our management will be required to report upon the effectiveness of our internal control over financial reporting beginning with the annual report for our fiscal year ending December 31, 2022. When we lose our status as an “emerging growth company” and reach an accelerated filer threshold, our independent registered public accounting firm will be required to attest to the effectiveness of our internal control over financial reporting. The rules governing the standards that must be met for our management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation. To comply with the requirements of being a reporting company under the Exchange Act, we may need to upgrade our information technology systems; implement additional financial and management controls, reporting systems and procedures; and hire additional accounting and finance staff. If we or, if required, our auditors are unable to conclude that our internal control over financial reporting is effective, investors may lose confidence in our financial reporting and the trading price of our common stock may decline.

We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal control over financial reporting in the future. Any failure to maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition, results of operations or cash flows. If we are unable to conclude that our internal control over financial reporting is effective, or if our independent registered public accounting firm determines we have a material weakness or significant deficiency in our internal control over financial reporting once that firm begin its Section 404 reviews, investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

We are subject to the periodic reporting requirements of the Exchange Act. We designed our disclosure controls and procedures to reasonably assure that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management, and recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures or internal controls and procedures, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

These inherent limitations include the facts that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because biotechnology and biopharmaceutical companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of our management’s attention and resources, which could harm our business.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

Our corporate headquarters are located in San Diego, California, where we currently lease approximately 16,153 square feet of office and laboratory space pursuant to a lease that expires April 1, 2022, with the option to holdover the lease month-to-month following such date. We plan to exercise this holdover option until we move into our new corporate headquarters, which is anticipated to occur in the second quarter of 2022. In September 2020, we entered into a lease of approximately 59,407 square feet of office and laboratory space in a facility in San Diego, California that is currently under construction, and scheduled to be completed in the second quarter of 2022. In March 2021, we amended this lease to include an additional 18,421 square feet of office space, resulting in 77,828 square feet of total leased space within this facility. The lease has an initial term of 10.5 years and commenced in August 2021. We believe our existing facilities are adequate to meet our current business requirements for the near term, and that additional space will be available on commercially reasonable terms, if required.

Item 3. Legal Proceedings.

We are not currently a party to any material proceedings. From time to time, we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. Regardless of outcome, such proceedings or claims can have an adverse impact on us because of defense and settlement costs, diversion of resources and other factors, and there can be no assurances that favorable outcomes will be obtained.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Certain Information Regarding the Trading of Our Common Stock

Our common stock trades under the symbol "ERAS" on the Nasdaq Global Select Market and has been publicly traded since July 16, 2021. Prior to this time, there was no public market for our common stock.

Holders of Our Common Stock

As of February 28, 2022, there were approximately 96 holders of record of our common stock. This number was derived from our shareholder records and does not include beneficial owners of our common stock whose shares are held in the name of various dealers, clearing agencies, banks, brokers and other fiduciaries.

Dividend Policy

We have never declared or paid any cash dividends on our capital stock. We intend to retain all available funds and future earnings, if any, to finance the operation of our business and do not anticipate paying any cash dividends in the foreseeable future. Any future determination related to dividend policy will be made at the discretion of our board of directors after considering our financial condition, results of operations, capital requirements, business prospects and other factors the board of directors deems relevant, and subject to the restrictions contained in any future financing instruments.

Securities Authorized for Issuance Under Equity Compensation Plans

Information about our equity compensation plans will be included in our definitive proxy statement to be filed with the SEC with respect to our 2022 Annual Meeting of Stockholders and is incorporated herein by reference.

Unregistered Sales of Equity Securities and Use of Proceeds

From January 1, 2021 to March 31, 2021, we granted options to purchase an aggregate of 3,928,869 shares of common stock, with an exercise price of $3.36 per share, to employees and a member of our SAB pursuant to our 2018 Equity Incentive Plan (the 2018 Plan). During such period, 439,610 shares of common stock were issued for gross proceeds of $1.1 million upon the exercise of stock options pursuant to the 2018 Plan.

In January 2021, we issued an aggregate of 15,931,772 shares of B-2 convertible preferred stock to investors at a purchase price of $7.50 per share, for aggregate consideration of approximately $119.5 million.

No underwriters were involved in the foregoing issuances of securities. The issuances of the securities described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act as transactions by an issuer not involving a public offering or Rule 701 promulgated under the Securities Act as transactions pursuant to compensatory benefit plans. All recipients either received adequate information about us or had access, through employment or other relationships, to such information. On July 16, 2021, we filed a registration statement on Form S-8 under the Securities Act to register all of the shares of our common stock subject to outstanding options and all shares of our common stock otherwise issuable pursuant to our equity compensation.

All other unregistered securities issued and sold during the year ended December 31, 2021 are disclosed in the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2021.

Recent Sales of Unregistered Equity Securities

None.

Use of Proceeds

On July 15, 2021, the SEC declared effective our registration statement on Form S-1 (File No. 333-257436), as amended, filed in connection with our IPO. Our IPO closed on July 20, 2021, and we issued and sold 21,562,500 shares of our common stock at a price to the public of $16.00 per share, which included the exercise in full of the underwriters' option to purchase additional shares. We received gross proceeds from our IPO of $345.0 million, before deducting underwriting discounts and commissions of $24.2 million and offering costs of $3.8 million. The managing underwriters of the offering were J.P. Morgan Securities LLC, Morgan Stanley & Co. LLC, BofA Securities, Inc., Evercore Group L.L.C. and Guggenheim Securities, LLC. No offering costs were paid or are payable, directly or indirectly, to our directors or officers, to persons owning 10% or more of any class of our equity securities or to any of our affiliates.

As of December 31, 2021, we have used approximately $28.3 million of the proceeds from our IPO for general corporate purposes, including to fund the clinical development of ERAS-007 in our Phase 1b/2 HERKULES clinical trials, ERAS-601 in our FLAGSHP-1 Phase 1 trial and our other RAS/MAPK pathway-focused pipeline programs. There has been no material change in the planned use of such proceeds from that described in the Prospectus.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

None.

Item 6. Reserved

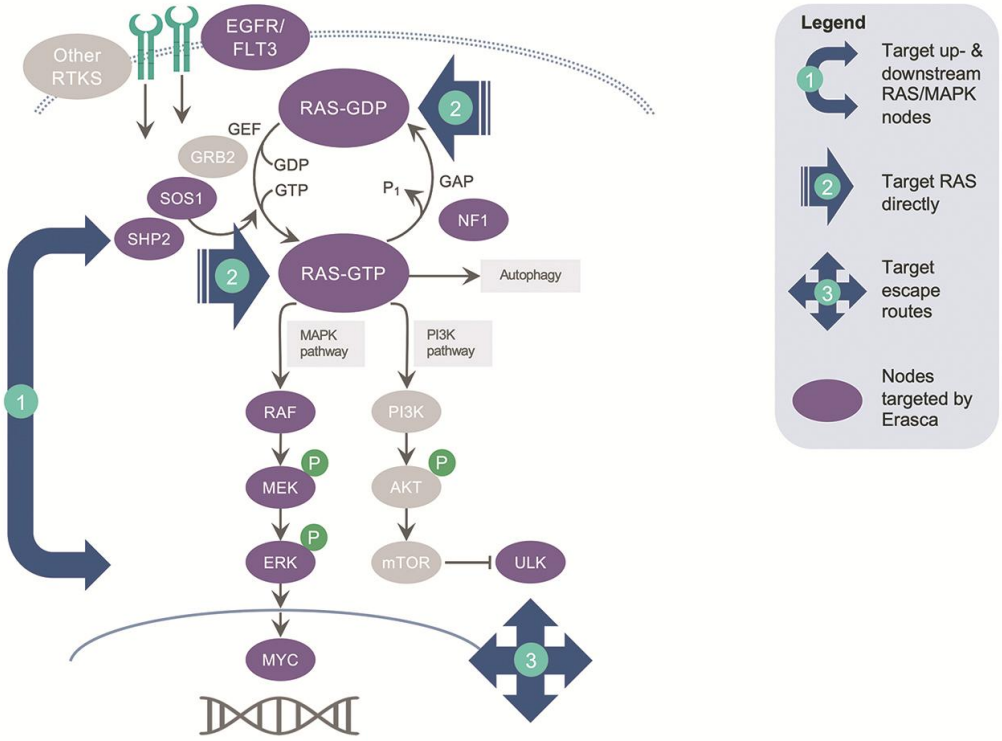
Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and notes thereto included elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements that involve risks and uncertainties, including those described in the section titled "Special Note Regarding Forward Looking Statements." As a result of many factors, including those factors set forth in the "Risk Factors" section of this Annual Report on Form 10-K, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a clinical-stage precision oncology company singularly focused on discovering, developing, and commercializing therapies for patients with RAS/MAPK pathway-driven cancers. Molecular alterations in RAS, the most frequently mutated oncogene, and the MAPK pathway, one of the most frequently altered signaling pathways in cancer, account for approximately 5.5 million new patients diagnosed globally each year. Our company was co-founded by leading pioneers in precision oncology and RAS targeting to create novel therapies and combination regimens designed to comprehensively shut down the RAS/MAPK pathway for the treatment of cancer. We have assembled what we believe to be the deepest, wholly-owned or controlled RAS/MAPK pathway-focused pipeline in the industry, comprising 11 modality-agnostic programs aligned with our three therapeutic strategies of: (1) targeting key upstream and downstream signaling nodes in the RAS/MAPK pathway; (2) targeting RAS directly; and (3) targeting escape routes that emerge in response to treatment.

The following figure shows the RAS/MAPK pathway and how the three therapeutic strategies listed above attempt to comprehensively and synergistically shut down the RAS/MAPK pathway.



The target breadth and molecular diversity represented in our pipeline enable us to pursue a systematic, data-driven clinical development effort to identify single agent and combination approaches with the goal of prolonging survival in numerous patient populations with high unmet medical needs. Our modality-agnostic approach aims to allow us to selectively and potently inhibit or degrade critical signaling nodes with small molecule therapeutics, large molecule therapeutics, and protein degraders. Our purpose-built pipeline includes three clinical-stage programs (ERK and SHP2 inhibitors, which together comprise our first, innovative MAPKlamp, and EGFR inhibitor), one preclinical-stage program (CNS-penetrant KRAS G12C inhibitor), and seven discovery-stage programs targeting other key oncogenic drivers. We expect to have four product candidates in the clinic within the next five quarters, plus the filing of an additional IND every 12-18 months through 2026. We believe our world-class team's capabilities and experience, further guided by our SAB, which includes the world's leading experts in the RAS/MAPK pathway, uniquely position us to achieve our bold mission of erasing cancer.

We do not own or operate, and currently have no plans to establish, any manufacturing facilities. We rely, and expect to continue to rely, on third parties for the manufacture of our product candidates for preclinical and clinical testing, as well as for commercial manufacture if any of our product candidates obtain marketing approval. We are working with our current manufacturers to ensure that we will be able to scale up our manufacturing capabilities to support our clinical plans. We are also in the process of locating and qualifying additional manufacturers to build redundancies into our supply chain. In addition, we rely on third parties to package, label, store, and distribute our product candidates, and we intend to rely on third parties for our commercial products if marketing approval is obtained. We believe that this strategy allows us to maintain a more efficient infrastructure by eliminating the need for us to invest in our own manufacturing facilities, equipment, and personnel while also enabling us to focus our expertise and resources on the design and development of our product candidates.

In July 2021, we completed our IPO and issued 21,562,500 shares of our common stock, including the exercise in full by the underwriters of their option to purchase 2,812,500 shares of our common stock, at a price to the public of $16.00 per share. Our aggregate net proceeds from the offering were $317.0 million, net of underwriting discounts and commissions of $24.2 million and offering costs of $3.8 million.

Since our inception in 2018, we have devoted substantially all of our resources to organizing and staffing our company, business planning, raising capital, identifying, acquiring, and in-licensing our product candidates, establishing our intellectual property portfolio, conducting research, preclinical studies and clinical trials, establishing arrangements with third parties for the manufacture of our product candidates and related raw materials, and providing general and administrative support for these operations. We do not have any products approved for sale and have not generated any revenue. As of December 31, 2021, we have raised a total of $665.4 million to fund our operations, comprised primarily of gross proceeds from our IPO and the sale and issuance of convertible preferred stock. As of December 31, 2021, we had cash, cash equivalents and investments of $459.2 million.

We have incurred significant operating losses since inception. Our net losses were $122.8 million and $101.7 million for the years ended December 31, 2021 and 2020, respectively. As of December 31, 2021, we had an accumulated deficit of $238.2 million. We expect our expenses and operating losses will increase substantially for the foreseeable future, particularly if and as we conduct our ongoing and planned clinical trials and preclinical studies; continue our research and development activities; utilize third parties to manufacture our product candidates and related raw materials; hire additional personnel; acquire, in-license, or develop additional product candidates; expand and protect our intellectual property; and incur additional costs associated with being a public company. If we obtain regulatory approval for any of our product candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing, and distribution. In addition, as our product candidates progress through development and toward commercialization, we will need to make milestone payments to the licensors and other third parties from whom we have in-licensed or acquired our product candidates. Our net losses may fluctuate significantly from quarter-to-quarter and year-to-year, depending on the timing of our clinical trials and preclinical studies and our expenditures on other research and development activities.

Based upon our current operating plans, we believe that our cash, cash equivalents and investments as of December 31, 2021 will be sufficient to fund our operations into 2024. We do not expect to generate any revenues from product sales until we successfully complete development and obtain regulatory approval for one or more of our product candidates, which we expect will take a number of years and may never occur. Accordingly, until such time as we can generate significant revenue from sales of our product candidates, if ever, we expect to finance our cash needs through equity offerings, debt financings or other capital sources, including potential collaborations, licenses, and other similar arrangements. However, we may be unable to raise additional funds or enter into such other arrangements when needed on favorable terms or at all. Our failure to raise capital or enter into such other arrangements when needed would have a negative impact on our financial condition and could force us to delay, limit, reduce, or terminate our research and development programs or other operations, or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

The COVID-19 worldwide pandemic has presented substantial public health and economic challenges and is affecting our employees, patients, physicians and other healthcare providers, communities and business operations, as well as the US and global economies and financial markets. To date, we have not experienced material disruptions in our business operations. However, while it is not possible at this time to estimate the impact that COVID-19 could have on our business in the future, particularly as we advance our product candidates through clinical development, the continued spread of COVID-19 and the measures taken by the governmental authorities, and any future epidemic disease outbreaks, could: disrupt the supply chain and the manufacture or shipment of drug substances and finished drug products for our product candidates for use in our research, preclinical studies and clinical trials; delay, limit or prevent our employees and CROs from continuing research and development activities; impede our clinical trial initiation and recruitment and the ability of patients to continue in clinical trials, including the risk that participants enrolled in our clinical trials will contract COVID-19 or other epidemic disease while the clinical trial is ongoing, which could impact the results of the clinical trial, including by increasing the number of observed adverse events; impede testing, monitoring, data collection and analysis and other related activities; any of which could delay our preclinical studies and clinical trials and increase our development costs, and have a material adverse effect on our business, financial condition and results of operations.

Our acquisition and license agreements

We have entered into in-license and acquisition agreements pursuant to which we in-licensed or acquired certain intellectual property rights related to our product candidates and development programs, including the Asana Agreements, the ELS Purchase Agreement, the NiKang Agreement, the Katmai Agreement, the LifeArc Agreement, and the UCSF Agreement.

For additional information regarding these agreements, see the section titled “Business—Our acquisition and license agreements” in this Annual Report on Form 10-K.

Components of results of operations

Revenue

We do not expect to generate any revenue from the sale of products unless and until such time that our product candidates have advanced through clinical development and regulatory approval, if ever. If we fail to complete preclinical and clinical development of product candidates or obtain regulatory approval for them, our ability to generate future revenues, and our results of operations and financial position would be adversely affected.

Operating expenses

Research and development

Research and development expenses consist of external and internal costs associated with our research and development activities, including our discovery and research efforts and the preclinical and clinical development of our product candidates. Research and development costs are expensed as incurred. Our research and development expenses include:

- external costs, including expenses incurred under arrangements with third parties, such as CROs, CMOs, consultants and our scientific advisors; and

- internal costs, including:
    - employee-related expenses, including salaries, benefits, and stock-based compensation for those individuals involved in research and development efforts;
    - the costs of laboratory supplies and acquiring, developing and manufacturing preclinical study materials; and
    - facilities and depreciation, which include direct and allocated expenses for rent of facilities and depreciation of equipment.

The following table summarizes our research and development expenses incurred for the following periods (in thousands):

	Year Ended December 31,	
	2021	2020
ERAS-007[(1)]	$ 22,717	$ 17
ERAS-601	15,312	9,876
Other discovery and preclinical programs	35,893	19,657
Total research and development expenses	$ 73,922	$ 29,550

(1) ERAS-007 was acquired in November 2020.

We expect our research and development expenses to increase substantially for the foreseeable future as we continue to conduct our ongoing research and development activities, conduct clinical trials and advance our preclinical research programs toward clinical development, particularly as more of our product candidates move into later stages of development which typically cost more. The process of conducting clinical trials and preclinical studies necessary to obtain regulatory approval is costly and time-consuming. We may never succeed in achieving marketing approval for any of our product candidates.

The timelines and costs with research and development activities are uncertain, can vary significantly for each product candidate and program and are difficult to predict. We anticipate we will make determinations as to which product candidates and programs to pursue and how much funding to direct to each product candidate and program on an ongoing basis in response to preclinical and clinical results, regulatory developments, ongoing assessments as to each product candidate's and program's commercial potential, and our ability to enter into collaborations, to the extent we determine the resources or expertise of a collaborator would be beneficial for a given product candidate or program. We will need to raise substantial additional capital in the future. In addition, we cannot forecast which product candidates and programs may be subject to future collaborations, when such arrangements will be secured, if at all, and to what degree such arrangements would affect our development plans and capital requirements.

Our development costs may vary significantly based on factors such as:

- the number and scope of preclinical and IND-enabling studies and clinical trials;
- per patient trial costs;
- the number of trials required for approval;
- the number of sites included in the trials;
- the countries in which the trials are conducted;
- the length of time required to enroll eligible patients;
- the number of patients that participate in the trials;
- the number of doses that patients receive;
- the drop-out or discontinuation rates of patients;
- potential additional safety monitoring requested by regulatory agencies;
- the duration of patient participation in the trials and follow-up;
- the cost and timing of manufacturing our product candidates;
- the phase of development of our product candidates;

- the efficacy and safety profile of our product candidates;
- the timing, receipt and terms of any approvals from applicable regulatory authorities;
- maintaining a continued acceptable safety profile of our products candidates following approval, if any;
- significant and changing government regulation and regulatory guidance;
- the impact of any interruptions to our operations or to those of the third parties with whom we work due to the ongoing COVID-19 pandemic; and
- the extent to which we establish additional collaboration, license or other arrangements.

In-process research and development

In-process research and development expenses include rights acquired as part of asset acquisitions or in-licenses to develop and commercialize product candidates. Upfront payments that relate to the acquisition of a new drug compound, as well as pre-commercial milestone payments, are immediately expensed as in-process research and development in the period in which they are incurred, provided that the new drug compound did not also include processes or activities that would constitute a “business” as defined under US generally accepted accounting principles (US GAAP), the drug has not achieved regulatory approval for marketing and, absent obtaining such approval, has no established alternative future use.

In-process research and development expenses consist primarily of our upfront and milestone payments and issuances of stock under the Asana Agreements, the NiKang Agreement, the Katmai Agreement, the ELS Purchase Agreement, and the UCSF Agreement.

General and administrative

General and administrative expenses consist primarily of employee-related expenses, including salaries, benefits and stock-based compensation, for employees in our finance, accounting, legal, information technology, business development and support functions. Other general and administrative expenses include allocated facility and depreciation related costs not otherwise included in research and development expenses and professional fees for auditing, tax, intellectual property and legal services. Costs related to filing and pursuing patent applications are recognized as general and administrative expenses as incurred since recoverability of such expenditures is uncertain.

We expect our general and administrative expenses will increase substantially for the foreseeable future as we continue to increase our general and administrative headcount to support our continued research and development activities and, if any product candidates receive marketing approval, commercialization activities, as well as to support our operations generally. We also expect to incur increased costs associated with operating as a public company. These increased costs will likely include increased expenses related to audit, legal, regulatory and tax services associated with maintaining compliance with exchange listing and SEC requirements, director and officer insurance premiums and investor relations costs associated with operating as a public company.

Other income (expense), net

Interest income

Interest income consists primarily of interest earned on our cash, cash equivalents and investments.

Change in fair value of preferred stock purchase right liability

Our issuance of shares of our Series B-1 convertible preferred stock in April and August 2020 potentially obligated us to issue 13,175,191 shares of our Series B-2 convertible preferred stock at a price of $7.50 per share in an additional closing to certain purchasers of our Series B-1 convertible preferred stock, upon the achievement of certain milestones set forth in the Series B financing purchase agreement. We determined our obligation to issue these shares of Series B-2 convertible preferred stock represented a freestanding financial instrument that required liability accounting. This freestanding preferred stock purchase right liability for the Series B-2 convertible preferred stock was recorded at fair value upon issuance and was subsequently remeasured to fair value at each reporting date. Changes in the fair value of the preferred

stock purchase right liability were recognized in the consolidated statements of operations and comprehensive loss until the obligation for the Series B-2 shares was fulfilled upon the Series B-2 issuance in January 2021.

Results of operations

Comparison of the years ended December 31, 2021 and 2020

The following table summarizes our results of operations for the years ended December 31, 2021 and 2020 (in thousands):

	Year Ended December 31,		
	2021	2020	Change
Operating expenses:			
Research and development	$ 73,922	$ 29,550	$ 44,372
In-process research and development	10,848	71,745	(60,897)
General and administrative	22,616	7,957	14,659
Contribution of common stock to Erasca Foundation	17,497	—	17,497
Total operating expenses	124,883	109,252	15,631
Loss from operations	(124,883)	(109,252)	(15,631)
Total other income (expense), net	2,119	7,592	(5,473)
Net loss	$ (122,764)	$ (101,660)	$ (21,104)

Research and development expenses

Research and development expenses were $73.9 million for the year ended December 31, 2021 compared to $29.6 million for the year ended December 31, 2020. The increase of $44.4 million was primarily driven by a $16.1 million increase in expenses incurred in connection with clinical trials, preclinical studies and discovery activities, a $13.8 million increase in personnel costs due to an increase in headcount, an $8.8 million increase in outsourced services and consulting fees, and a $4.6 million increase in stock-based compensation expense, primarily due to increases in our stock price and headcount.

In-process research and development expenses

In-process research and development expenses were $10.8 million for the year ended December 31, 2021 compared to $71.7 million for the year ended December 31, 2020. In-process research and development expenses for the year ended December 31, 2021 related to the cash payment of $1.7 million following the achievement of the Corporate Milestone under the UCSF Agreement and the issuance of 944,945 shares of our common stock at a price of $5.81 per share or a total fair value of $5.5 million in connection with the amendment to the UCSF Agreement, and a $2.0 million upfront payment and issuance of 500,000 shares of our common stock at a price of $3.36 per share or a total fair value of $1.7 million in connection with the ELS Purchase Agreement. In-process research and development expenses for the year ended December 31, 2020 related to a $20.0 million upfront payment and issuance of 4,000,000 shares of our Series B-2 convertible preferred stock at a price of $7.50 per share or a total fair value of $30.0 million in connection with the Asana Agreements, a $5.7 million upfront payment in connection with the Katmai Agreement, and a $5.0 million upfront payment and $11.0 million in milestone payments in connection with the NiKang Agreement.

General and administrative expenses

General and administrative expenses were $22.6 million for the year ended December 31, 2021 compared to $8.0 million for the year ended December 31, 2020. The increase of $14.7 million was primarily driven by a $6.2 million increase in personnel costs due to an increase in headcount, a $2.9 million increase in stock-based compensation expense due to increases in our stock price and headcount, a $2.0 million increase in insurance costs, a $1.4 million increase in facilities and office-related costs, and a $1.3 million increase in legal and accounting fees.

Contribution of common stock to Erasca Foundation

Contribution of common stock to Erasca Foundation of $17.5 million was recognized for the year ended December 31, 2021 in connection with the issuance of 1,093,557 shares of our common stock at a price of $16.00 per share as a contribution to the Erasca Foundation in conjunction with our IPO. We established the Erasca Foundation in May 2021 to provide support such as direct research grants, hardship grants, patient advocacy, patient education in underserved populations, and funding for other initiatives to positively impact society that align with our mission. The Erasca Foundation is a related party as our chief executive officer and certain board members serve as directors of the Erasca Foundation and our chief executive officer, chief financial officer, and general counsel are also officers of the Erasca Foundation. No such expenses were recognized for the year ended December 31, 2020.

Other income (expense), net

Other income (expense), net was $2.1 million for the year ended December 31, 2021 compared to $7.6 million for the year ended December 31, 2020. The decrease of $5.5 million was primarily related to a decrease of $5.7 million in the change in fair value of the preferred stock purchase right liability.

Liquidity and capital resources

Sources of liquidity

In July 2021, we completed our IPO and issued 21,562,500 shares of our common stock, including the exercise in full by the underwriters of their option to purchase 2,812,500 shares of our common stock, at a price to the public of $16.00 per share. Our aggregate net proceeds from the offering were $317.0 million, net of underwriting discounts and commissions of $24.2 million and offering costs of $3.8 million. Prior to the IPO, we received aggregate gross proceeds of $320.4 million from the sale of shares of our convertible preferred stock.

Future capital requirements

As of December 31, 2021, we had cash, cash equivalents and investments of $459.2 million. Based upon our current operating plans, we believe that our cash, cash equivalents and investments, will be sufficient to fund our operations into 2024. However, our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement that involves risks and uncertainties, and actual results could vary materially. We have based this estimate on assumptions that may prove to be wrong, and we could deplete our capital resources sooner than we expect. Additionally, the process of conducting preclinical studies and testing product candidates in clinical trials is costly, and the timing of progress and expenses in these studies and trials is uncertain.

Our future capital requirements are difficult to forecast and will depend on many factors, including but not limited to:

- the type, number, scope, progress, expansions, results, costs and timing of discovery, preclinical studies and clinical trials of our product candidates which we are pursuing or may choose to pursue in the future, including the costs of any third-party products used in our combination clinical trials that are not covered by such third party or other sources;
- the costs and timing of manufacturing for our product candidates, including commercial manufacturing if any product candidate is approved;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs of obtaining, maintaining and enforcing our patents and other intellectual property rights;
- our efforts to enhance operational systems and hire additional personnel to satisfy our obligations as a public company, including enhanced internal controls over financial reporting;
- the costs associated with hiring additional personnel and consultants as our preclinical and clinical activities increase;

- the timing and amount of the milestone or other payments we must make to the licensors and other third parties from whom we have in-licensed or acquired our product candidates or technologies;
- the costs and timing of establishing or securing sales and marketing capabilities if any product candidate is approved;
- our ability to achieve sufficient market acceptance, coverage and adequate reimbursement from third-party payors and adequate market share and revenue for any approved products;
- patients' willingness to pay out-of-pocket for any approved products in the absence of coverage and/or adequate reimbursement from third-party payors;
- any delays and cost increases that result from the COVID-19 pandemic;
- the terms and timing of establishing and maintaining collaborations, licenses and other similar arrangements; and
- costs associated with any products or technologies that we may in-license or acquire.

We have no other committed sources of capital. Until we can generate a sufficient amount of product revenue to finance our cash requirements, if ever, we expect to finance our future cash needs primarily through equity offerings, debt financings or other capital sources, including potential collaborations, licenses and other similar arrangements. However, we may be unable to raise additional funds or enter into such other arrangements when needed on favorable terms or at all. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our stockholders will be or could be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our common stockholders. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through other collaborations or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our research and development programs or other operations, or grant rights to develop and market product candidates to third parties that we would otherwise prefer to develop and market ourselves.

Cash flows

The following table shows a summary of our cash flows for the periods presented (in thousands):

	Year Ended December 31,	
	2021	2020
Net cash (used in) provided by:		
Operating activities	$ (79,600)	$ (32,686)
Investing activities	(64,590)	(71,202)
Financing activities	439,397	139,993
Net increase in cash, cash equivalents and restricted cash	$ 295,207	$ 36,105

Operating activities

Cash used in operating activities was $79.6 million during the year ended December 31, 2021, primarily resulting from a net loss of $122.8 million, partially reduced by the issuance of common stock to the Erasca Foundation of $17.5 million, which is reflected in noncash investing and financing activities, in-process research and development expenses of $10.8 million, which are reflected in noncash and investing activities, stock-based compensation of $8.3 million, changes in operating assets and liabilities of $7.7 million and depreciation expense of $0.8 million, partially offset by a $1.6 million change in fair value of the preferred stock purchase right liability. Net cash provided by changes in operating assets and liabilities consisted primarily of increases in accounts payable, accrued expenses and other current liabilities of $13.2 million, partially offset by an increase in prepaid expenses and other current and long-term assets of $6.7 million.

Cash used in operating activities was $32.7 million during the year ended December 31, 2020, primarily resulting from a net loss of $101.7 million, partially reduced by in-process research and development expenses of $71.7 million, which are reflected in noncash and investing activities, changes in operating assets and liabilities of $3.3 million, stock-based compensation expense of $0.8 million, and depreciation expense of $0.5 million, partially offset by a $7.4 million change in fair value of the preferred stock purchase right liability. Net cash provided by changes in operating assets and liabilities consisted primarily of increases in accrued expenses and other liabilities of $4.6 million, partially offset by an increase in prepaid expenses and other assets of $0.9 million.

Investing activities

Net cash used in investing activities was $64.6 million during the year ended December 31, 2021 as compared to cash used in investing activities of $71.2 million during the year ended December 31, 2020. The decrease in cash used in investing activities of $6.6 million was primarily the result of a decrease in in-process research and development of $30.1 million, offset by an increase in purchases of property and equipment of $10.3 million, an increase in purchases of investments of $6.6 million, and a decrease in maturities of investments of $6.6 million.

Financing activities

Net cash provided by financing activities was $439.4 million during the year ended December 31, 2021 as compared to $140.0 million during the year ended December 31, 2020. During the year ended December 31, 2021, we received $317.0 million from the issuance of common stock in our IPO, net of underwriting discounts and commissions and offering costs, $119.4 million from the sale of shares of our Series B-2 convertible preferred stock, net of issuance costs, $1.4 million from the exercise of stock options, $1.1 million from the issuance of common stock under our Employee Stock Purchase Plan and $0.6 million from the disgorgement of a stockholder's short-swing profits. During the year ended December 31, 2020, we received $137.0 million from the sale of shares of our Series B-1 convertible preferred stock, net of issuance costs, and $3.0 million from the exercise of stock options.

Cash requirements due to contractual obligations and other commitments

We lease office and laboratory space and certain laboratory equipment under lease agreements with varying expiration dates through 2032. As of December 31, 2021, total future aggregate operating lease commitments was $87.3 million, with approximately $1.1 million due in 2022, and the remaining due in periods from 2023 through 2032. See Note 11 in the Notes to Consolidated Financial Statements for further information.

We enter into contracts in the normal course of business for contract research services, contract manufacturing services, professional services and other services and products for operating purposes. These contracts generally provide for termination after a notice period, and, therefore, are cancelable contracts and not included in the table above.

Additionally, there are additional potential development and sales milestone payments and royalty payments we may be required to make under license and acquisition agreements we have entered into pursuant to which we have in-licensed and acquired certain intellectual property. See the section titled “Business—Our acquisition and license agreements” for additional information. The timing of when these additional payments will actually be made is uncertain as the payments are contingent upon the completion of future activities.

Off-balance sheet arrangements

During the periods presented, we did not have, nor do we currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Critical accounting policies and estimates

This management discussion and analysis of financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with US GAAP. The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses. On an ongoing basis, we evaluate these estimates and judgments. We base our estimates on historical experience and on various assumptions that we believe to be reasonable under the circumstances. These estimates and assumptions form the basis for making judgments about the carrying values of assets and liabilities and the recording of revenue and expenses that are not readily apparent from other sources. Actual results may differ materially from these estimates.

While our significant accounting policies are described in more detail in Note 2 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K, we believe that the following accounting policies are the most critical to understanding and evaluating our historical and future performance.

Accrued research and development expenses

We are required to make estimates of our accrued expenses resulting from our obligations under contracts with CROs, manufacturers, vendors and consultants, in connection with conducting research and development activities. The financial terms of these contracts vary from contract to contract and may result in payment flows that do not match the periods over which materials or services are provided under such contracts. We reflect research and development expenses in our consolidated financial statements by matching those expenses with the period in which services and efforts are expended.

We account for these expenses by reviewing open contracts and purchase orders, communicating with our personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of the actual cost. We make estimates of our accrued expenses as of each balance sheet date based on facts and circumstances known to us at that time. We periodically confirm the accuracy of our estimates with the service providers and make adjustments if necessary. The significant estimates in our accrued research and development expenses include the costs incurred for services performed by our vendors in connection with research and development activities for which we have not yet been invoiced.

We base our expenses related to research and development activities on our estimates of the services received and efforts expended pursuant to quotes and contracts with vendors that conduct research and development on our behalf. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the research and development expense. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from our estimate, we adjust the accrual or prepaid expense accordingly. Advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made.

Although we do not expect our estimates to be materially different from amounts actually incurred, if our estimates of the status and timing of services performed differ from the actual status and timing of services performed, it could result in us reporting amounts that are too high or too low in any particular period. To date, there have been no material differences between our estimates of such expenses and the amounts actually incurred.

Stock-based compensation

Stock-based compensation expense represents the cost of the grant date fair value of equity awards recognized over the requisite service period of the awards (usually the vesting period) on a straight-line basis. We estimate the fair value of stock option awards using the Black-Scholes option pricing model and recognize forfeitures as they occur.

The Black-Scholes option pricing model requires the use of subjective assumptions, including the risk-free interest rate, the expected stock price volatility, the expected term of stock options, the expected dividend yield and the fair value of the underlying common stock on the date of grant. Changes in these assumptions can materially affect the fair value and ultimately how much stock-based compensation expense is recognized. These inputs are subjective and generally require judgment to develop. See Note 10 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K for information concerning certain of the specific assumptions we used in applying the Black-Scholes option pricing model to determine the estimated fair value of our stock options granted in the years ended December 31, 2021 and 2020.

Prior to our IPO, since there was no public market for our common stock, we were required to estimate the fair value of the common stock underlying our equity awards when performing fair value calculations. The fair value of the common stock underlying our equity awards was determined on each grant date by our board of directors, taking into account input from management and independent third-party valuation analyses. All options to purchase shares of our common stock are intended to be granted with an exercise price per share no less than the fair value per share of our common stock underlying those options on the date of grant, based on the information known to us on the date of grant. In the absence of a public trading market for our common stock, on each grant date we developed an estimate of the fair value of our common stock in order to determine an exercise price for the option grants. Our determinations of the fair value of our common stock were made using methodologies, approaches and assumptions consistent with the American Institute of Certified Public Accountants Accounting and Valuation Guide: *Valuation of Privately Held Company Equity Securities Issued as Compensation* (the Practice Aid).

Following our IPO, the fair value of our common stock is based on the closing price as reported on the date of grant.

Recently issued and adopted accounting pronouncements

See Note 2 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K for recently issued and adopted accounting pronouncements.

Emerging growth company and smaller reporting company status

As an emerging growth company under the JOBS Act, we can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption from new or revised accounting standards and, therefore, our consolidated financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates. We also intend to rely on other exemptions provided by the JOBS Act, including without limitation, not being required to comply with the auditor attestation requirements of Section 404(b) of Sarbanes-Oxley.

We will remain an emerging growth company until the earliest of (i) the last day of the fiscal year following the fifth anniversary of the consummation of our IPO; (ii) the last day of the fiscal year in which we have total annual gross revenue of at least $1.07 billion; (iii) the last day of the fiscal year in which we are deemed to be a “large accelerated filer” as defined in Rule 12b-2 under the Exchange Act, which would occur if the market value of our common stock held by non-affiliates exceeded $700.0 million as of the last business day of the second fiscal quarter of such year; or (iv) the date on which we have issued more than $1.0 billion in nonconvertible debt securities during the prior three-year period.

We are also a smaller reporting company as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than $250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than $100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than $700.0 million measured on the last business day of our second fiscal quarter.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Interest rate risk

We are exposed to market risk related to changes in interest rates of our investment portfolio of cash equivalents, short-term investments and long-term investments. As of December 31, 2021, our cash equivalents, short-term investments and long-term investments consisted of money market funds, US treasury securities, corporate debt securities, commercial paper and supranational debt securities. As of December 31, 2020, our cash equivalents and short-term investments consisted of money market funds, commercial paper, corporate debt securities, and US treasury securities. Our primary exposure to market risk is interest income sensitivity, which is affected by changes in the general level of US interest rates. The fair value of our marketable securities is subject to change as a result of potential changes in market interest rates, including changes resulting from the impact of the COVID-19 pandemic. Due to the nature of our cash equivalents and investments, we believe an immediate hypothetical 10% change in interest rates would not have had a material effect on our results of operations during the periods presented.

Foreign currency exchange risk

We are exposed to market risk related to changes in foreign currency exchange rates. We contract with vendors that are located outside the United States and certain invoices are denominated in foreign currencies. We are subject to fluctuations in foreign currency rates in connection with these arrangements. To date, these fluctuations have not been significant and we have not had a formal hedging program with respect to foreign currency. We believe an immediate hypothetical 10% change in exchange rates would not have had a material effect on our results of operations during the periods presented.

Effects of inflation

Inflation generally affects us by increasing our cost of labor and research and development contract costs. We believe inflation has not had a material effect on our results of operations during the periods presented.

Item 8. Financial Statements and Supplementary Data.

The financial statements required to be filed pursuant to this Item 8 are appended to this Annual Report on Form 10-K. An index of those financial statements is found in Index to the Consolidated Financial Statements on page F-1 of this Annual Report on Form 10-K, as incorporated into Item 15, Exhibits and Financial Statement Schedules, of this Annual Report on Form 10-K, by reference.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our periodic and current reports that we file with the SEC is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable and not absolute assurance of achieving the desired control objectives. In reaching a reasonable level of assurance, management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. In addition, the design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the

degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Our management, with the participation of our principal executive officer and our principal financial officer, evaluated, as of the end of the period covered by this Annual Report on Form 10-K, the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act). Based on that evaluation, our principal executive officer and principal financial officer have concluded that, as of December 31, 2021, our disclosure controls and procedures were effective at the reasonable assurance level.

Management's Report and Attestation Report on Internal Control over Financial Reporting

This Annual Report on Form 10-K does not include a report of management's assessment regarding internal control over financial reporting or an attestation report of our independent registered public accounting firm due to a transition period established by rules of the SEC for newly public companies.

Changes in Internal Control Over Financial Reporting

There have been no changes in our internal control over financial reporting during the quarter ended December 31, 2021 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this Item 10 will be included in our Definitive Proxy Statement to be filed with the SEC, with respect to our 2022 Annual Meeting of Stockholders within 120 days of the end of our fiscal year (Definitive Proxy Statement), under the headings "Election of Directors," "Corporate Governance," "Executive Officers," and "Section 16(a) Beneficial Ownership Reporting Compliance," and is incorporated herein by reference.

Code of Business Conduct and Ethics
We have adopted a Code of Business Conduct and Ethics that applies to our officers, directors and employees, which is available on our website at www.erasca.com. The Code of Business Conduct and Ethics contains general guidelines for conducting the business of our company consistent with the highest standards of business ethics and is intended to qualify as a "code of ethics" within the meaning of Section 406 of the Sarbanes-Oxley Act of 2002 and Item 406 of Regulation S-K. In addition, we intend to promptly disclose (1) the nature of any amendment to our Code of Business Conduct and Ethics that applies to our principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions and (2) the nature of any waiver, including an implicit waiver, from a provision of our code of ethics that is granted to one of these specified officers, the name of such person who is granted the waiver and the date of the waiver on our website in the future.

Item 11. Executive Compensation.

The information required by this Item 11 will be included in our Definitive Proxy Statement under the heading “Executive Compensation and Other Information,” and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this Item 12 will be included in our Definitive Proxy Statement under the heading “Security Ownership of Certain Beneficial Owners and Management,” and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this Item 13 will be included in our Definitive Proxy Statement under the headings “Certain Relationships and Related Person Transactions,” “Board Independence” and “Committees of the Board of Directors” and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services.

The information required by this Item 14 will be included in our Definitive Proxy Statement under the heading “Independent Registered Public Accountants’ Fees,” and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(1) For a list of the financial statements included herein, see Index to the Consolidated Financial Statements on page F-1 of this Annual Report on Form 10-K, incorporated into this Item by reference.

(2) Financial statement schedules have been omitted because they are either not required or not applicable or the information is included in the consolidated financial statements or the notes thereto.

(3) The exhibits filed as part of this Annual Report on Form 10-K are set forth on the Exhibit Index immediately preceding the signature page of this Annual Report on Form 10-K. The Exhibit Index is incorporated herein by reference.

Item 16. Form 10-K Summary.

None.

Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Erasca, Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Erasca, Inc. and subsidiaries (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations and comprehensive loss, convertible preferred stock and stockholders' equity (deficit), and cash flows for the years then ended, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for the years then ended, in conformity with US generally accepted accounting principles.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the US federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 2020.

San Diego, California
March 24, 2022

Erasca, Inc.
Consolidated Balance Sheets
(In thousands, except share and par value amounts)

	December 31, 2021	December 31, 2020
Assets		
Current assets:		
Cash and cash equivalents	$ 360,487	$ 65,376
Short-term investments	53,988	53,325
Prepaid expenses and other current assets	5,542	1,289
Total current assets	420,017	119,990
Long-term investments	44,770	—
Property and equipment, net	15,954	1,847
Operating lease assets	17,356	2,225
Restricted cash	408	312
Other assets	2,910	451
Total assets	$ 501,415	$ 124,825
Liabilities, Convertible Preferred Stock and Stockholders' Equity (Deficit)		
Current liabilities:		
Accounts payable	$ 4,677	$ 878
Accrued expenses and other current liabilities	21,419	11,925
Operating lease liabilities	285	877
Total current liabilities	26,381	13,680
Operating lease liabilities, net of current portion	18,506	2,109
Preferred stock purchase right liability	—	1,615
Total liabilities	44,887	17,404
Commitments and contingencies (Note 12)		
Convertible preferred stock (Series A, B-1 and B-2), $0.0001 par value; no shares and 97,622,409 shares authorized as of December 31, 2021 and 2020, respectively; no shares and 69,584,682 shares issued and outstanding as of December 31, 2021 and 2020, respectively; aggregate liquidation preference of $0 and $230,924 as of December 31, 2021 and 2020, respectively	—	221,405
Stockholders' equity (deficit):		
Preferred stock, $0.0001 par value; 80,000,000 shares and no shares authorized as of December 31, 2021 and 2020, respectively; no shares issued and outstanding as of December 31, 2021 and 2020	—	—
Common stock, $0.0001 par value; 800,000,000 and 147,027,681 shares authorized as of December 31, 2021 and 2020, respectively; 121,382,547 and 25,189,673 shares issued at December 31, 2021 and 2020, respectively; 119,102,505 and 21,923,173 shares outstanding at December 31, 2021 and 2020, respectively	12	3
Additional paid-in capital	694,844	1,413
Accumulated other comprehensive (loss) income	(162)	2
Accumulated deficit	(238,166)	(115,402)
Total stockholders' equity (deficit)	456,528	(113,984)
Total liabilities, convertible preferred stock and stockholders' equity (deficit)	$ 501,415	$ 124,825

The accompanying notes are an integral part of these consolidated financial statements.

Erasca, Inc.
Consolidated Statements of Operations and Comprehensive Loss
(In thousands, except share and per share amounts)

	Year Ended December 31,	
	2021	**2020**
Operating expenses:		
Research and development	$ 73,922	$ 29,550
In-process research and development	10,848	71,745
General and administrative	22,616	7,957
Contribution of common stock to Erasca Foundation	17,497	—
Total operating expenses	124,883	109,252
Loss from operations	(124,883)	(109,252)
Other income (expense)		
Interest income	190	336
Other income (expense), net	314	(102)
Change in fair value of preferred stock purchase right liability	1,615	7,358
Total other income (expense), net	2,119	7,592
Net loss	$ (122,764)	$ (101,660)
Net loss per share, basic and diluted	$ (1.85)	$ (4.83)
Weighted-average shares of common stock used in computing net loss per share, basic and diluted	66,290,592	21,037,540
Other comprehensive income (loss):		
Unrealized loss on investments, net	(164)	(9)
Comprehensive loss	$ (122,928)	$ (101,669)

The accompanying notes are an integral part of these consolidated financial statements.

Erasca, Inc.
Consolidated Statements of Convertible Preferred Stock and Stockholders' Equity (Deficit)
(In thousands, except share data)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount				
Balance at December 31, 2019	38,103,681	63,403	22,629,158	3	124	11	(13,742)	(13,604)
Issuance of Series B-1 convertible preferred stock for cash, net of $430 in issuance costs and preferred stock purchase right liability of $8,973	27,481,001	128,002	—	—	—	—	—	—
Issuance of Series B-2 convertible preferred stock in connection with asset acquisition	4,000,000	30,000	—	—	—	—	—	—
Exercise of stock options	—	—	3,542,113	—	170	—	—	170
Vesting of early exercised stock options	—	—	—	—	322	—	—	322
Repurchases of early exercised stock options and restricted stock			(981,598)	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	797	—	—	797
Net loss	—	—	—	—	—	—	(101,660)	(101,660)
Unrealized loss on investments, net	—	—	—	—	—	(9)	—	(9)
Balance at December 31, 2020	69,584,682	$ 221,405	25,189,673	$ 3	$ 1,413	$ 2	$ (115,402)	$ (113,984)
Issuance of Series B-2 convertible preferred stock for cash, net of $95 in issuance costs	15,931,772	119,393	—	—	—	—	—	—
Issuance of common stock in connection with asset acquisition	—	—	500,000	—	1,680	—	—	1,680
Issuance of common stock in connection with license agreement	—	—	944,945	—	5,488	—	—	5,488
Conversion of convertible preferred stock into common stock upon initial public offering	(85,516,454)	(340,798)	71,263,685	7	340,791	—	—	340,798
Issuance of common stock in initial public offering, net of $28,001 in discounts and offering costs	—	—	21,562,500	2	316,997	—	—	316,999
Issuance of common stock to Erasca Foundation	—	—	1,093,557	—	17,497	—	—	17,497
Disgorgement of stockholder's short-swing profits	—	—	—	—	553	—	—	553
Exercise of stock options	—	—	736,200	—	335	—	—	335
Vesting of early exercised stock options	—	—	—	—	692	—	—	692
Issuance of common stock under the Employee Stock Purchase Plan	—	—	91,987	—	1,067	—	—	1,067
Stock-based compensation expense	—	—	—	—	8,331	—	—	8,331
Net loss	—	—	—	—	—	—	(122,764)	(122,764)
Unrealized loss on investments, net	—	—	—	—	—	(164)	—	(164)
Balance at December 31, 2021	—	$ —	121,382,547	$ 12	$ 694,844	$ (162)	$ (238,166)	$ 456,528

The accompanying notes are an integral part of these consolidated financial statements.

Erasca, Inc.
Consolidated Statements of Cash Flows
(In thousands)

	Year Ended December 31,	
	2021	**2020**
Cash flows from operating activities:		
Net loss	$ (122,764)	$ (101,660)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	829	540
Stock-based compensation expense	8,331	797
In-process research and development expenses	10,848	71,745
Issuance of common stock to Erasca Foundation	17,497	—
Amortization (accretion) on investments, net	108	(38)
Change in fair value of preferred stock purchase right liability	(1,615)	(7,358)
Gain on remeasurement of operating lease assets and liabilities	(539)	—
Changes in operating assets and liabilities:		
Prepaid expenses and other current and long-term assets	(6,711)	(930)
Accounts payable	1,344	(380)
Accrued expenses and other current liabilities	11,859	4,693
Operating lease assets and liabilities, net	1,213	(95)
Net cash used in operating activities	(79,600)	(32,686)
Cash flows from investing activities:		
Purchases of investments	(105,815)	(99,202)
Maturities of investments	60,110	66,692
In-process research and development	(7,680)	(37,745)
Purchases of property and equipment	(11,205)	(947)
Net cash used in investing activities	(64,590)	(71,202)
Cash flows from financing activities:		
Proceeds from the issuance of common stock in initial public offering, net of discounts and offering costs	316,999	—
Proceeds from the issuance of convertible preferred stock, net of issuance costs	119,393	136,975
Proceeds from the exercise of stock options, net of repurchases	1,385	3,018
Proceeds from the disgorgement of stockholder's short-swing profits	553	—
Proceeds from issuance of common stock under the Employee Stock Purchase Plan	1,067	—
Net cash provided by financing activities	439,397	139,993
Net increase in cash, cash equivalents and restricted cash	295,207	36,105
Cash, cash equivalents and restricted cash at beginning of the period	65,688	29,583
Cash, cash equivalents and restricted cash at end of the period	$ 360,895	$ 65,688
Supplemental disclosure of noncash investing and financing activities:		
Issuance of common stock to Erasca Foundation	$ 17,497	$ —
Issuance of common stock in connection with asset acquisition	$ 1,680	$ —
Issuance of common stock in connection with license agreement	$ 5,488	$ —
Issuance of Series B-2 convertible preferred stock in connection with asset acquisition	$ —	$ 30,000
Amounts accrued for purchases of property and equipment	$ 3,807	$ 74
Amounts accrued for in-process research and development expenses	$ —	$ 4,000
Conversion of preferred stock to common stock upon initial public offering	$ 340,798	$ —
Vesting of early exercised options	$ 692	$ 322
Preferred stock purchase right liability	$ —	$ 8,973
Supplemental disclosure of noncash operating activities:		
Operating lease assets obtained in exchange for lease obligation	$ 17,498	$ 28
Tenant improvement allowance included in operating lease liabilities	$ 16,774	$ —
Reduction in operating lease assets due to lease amendment	$ 1,271	$ —

The accompanying notes are an integral part of these consolidated financial statements.

Note 1. Organization and basis of presentation

Organization and nature of operations

Erasca, Inc. (Erasca or the Company) is a clinical-stage precision oncology company singularly focused on discovering, developing, and commercializing therapies for RAS/MAPK pathway-driven cancers. The Company has assembled a wholly-owned or controlled RAS/MAPK pathway-focused pipeline comprising 11 modality-agnostic programs aligned with its three therapeutic strategies of: (i) targeting key upstream and downstream signaling nodes in the RAS/MAPK pathway; (ii) targeting RAS directly; and (iii) targeting escape routes that emerge in response to treatment. The Company was incorporated under the laws of the State of Delaware on July 2, 2018, as Erasca, Inc., and is headquartered in San Diego, California. In September 2020, the Company established a wholly-owned Australian subsidiary, Erasca Australia Pty Ltd (Erasca Australia), in order to conduct clinical activities in Australia for its development candidates. In November 2020, the Company entered into an agreement and plan of merger with Asana BioSciences, LLC (Asana) and ASN Product Development, Inc. (ASN) (the Asana Merger Agreement), pursuant to which ASN became the Company's wholly-owned subsidiary. In March 2021, the Company established a wholly-owned subsidiary, Erasca Ventures, LLC (Erasca Ventures), to make equity investments in early-stage biotechnology companies that are aligned with the Company’s mission and strategy.

Since inception, the Company has devoted substantially all of its efforts and resources to organizing and staffing the Company, business planning, raising capital, identifying, acquiring and in-licensing the Company’s product candidates, establishing its intellectual property portfolio, conducting research, preclinical studies, and clinical trials, establishing arrangements with third parties for the manufacture of its product candidates and related raw materials, and providing general and administrative support for these operations. As of December 31, 2021, the Company had $414.5 million in cash, cash equivalents, and short-term investments. As of December 31, 2021, the Company had an accumulated deficit of $238.2 million. The Company has incurred significant operating losses and negative cash flows from operations. From its inception through December 31, 2021, the Company’s financial support has primarily been provided from the sale of its convertible preferred stock and the sale of its common stock in its initial public offering (IPO).

As the Company continues its expansion, it expects to use its cash, cash equivalents, and short-term investments to fund research and development, working capital, and other general corporate purposes. The Company does not expect to generate any revenues from product sales unless and until the Company successfully completes development and obtains regulatory approval for any of its product candidates, which will not be for at least the next several years, if ever. Accordingly, until such time as the Company can generate significant revenue from sales of its product candidates, if ever, the Company expects to finance its cash needs through equity offerings, debt financings, or other capital sources, including potential collaborations, licenses or other similar arrangements. However, the Company may not be able to secure additional financing or enter into such other arrangements in a timely manner or on favorable terms, if at all. The Company’s failure to raise capital or enter into such other arrangements when needed would have a negative impact on the Company’s financial condition and could force the Company to delay, limit, reduce or terminate its research and development programs or other operations, or grant rights to develop and market product candidates that the Company would otherwise prefer to develop and market itself. The Company believes its cash, cash equivalents, and short-term investments as of December 31, 2021 will be sufficient for the Company to fund operations for at least one year from the issuance date of these consolidated financial statements.

Initial public offering

On July 20, 2021, the Company completed its IPO in which the Company issued and sold 21,562,500 shares of its common stock, including the exercise in full by the underwriters of their option to purchase 2,812,500 shares of common stock, at a price to the public of $16.00 per share. Proceeds from the IPO, net of underwriting discounts and commissions of $24.2 million and offering costs of $3.8 million, were $317.0 million. In connection with the completion of the IPO, all outstanding shares of convertible preferred stock were converted into 71,263,685 shares of common stock.

Reverse stock split

On July 9, 2021, the Company effected a one-for-1.2 reverse stock split of its issued and outstanding shares of common stock (the Reverse Stock Split). The par value and the number of authorized shares of the convertible preferred stock and common stock were not adjusted as a result of the Reverse Stock Split. All issued and outstanding common stock and the conversion prices and ratio of the convertible preferred stock have been retroactively adjusted to reflect this Reverse Stock Split for all periods presented.

Basis of presentation

The accompanying consolidated financial statements have been prepared in accordance with US generally accepted accounting principles (US GAAP). Any reference in these notes to applicable guidance is meant to refer to US GAAP as found in the Accounting Standards Codification (ASC) and Accounting Standards Updates (ASU) promulgated by the Financial Accounting Standards Board (FASB).

Principles of consolidation and foreign currency transactions

The Company's consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries, Erasca Australia, ASN, and Erasca Ventures. Erasca Australia was registered under the laws of Australia on September 1, 2020, ASN was incorporated under the laws of the State of Delaware on November 23, 2020, and Erasca Ventures was formed under the laws of the State of Delaware on March 30, 2021. All intercompany balances and transactions have been eliminated. The functional currency of the Company and its wholly-owned subsidiaries is the US dollar. Assets and liabilities that are not denominated in the functional currency are remeasured into US dollars at foreign currency exchange rates in effect at the balance sheet date except for nonmonetary assets, which are remeasured at historical foreign currency exchange rates in effect at the date of transaction. Net realized and unrealized gains and losses from foreign currency transactions and remeasurement are reported in other income (expense), in the consolidated statements of operations and comprehensive loss and were not material for all periods presented.

Note 2. Summary of significant accounting policies

Use of estimates

The preparation of the Company's consolidated financial statements in conformity with US GAAP requires the Company to make estimates and assumptions that impact the reported amounts of assets, liabilities, expenses, and the disclosure of contingent assets and liabilities in the consolidated financial statements and accompanying notes. Accounting estimates and management judgments reflected in the consolidated financial statements include, but are not limited to, the accrual of research and development expenses, fair value of common stock, preferred stock and freestanding instruments, stock-based compensation expense, and the incremental borrowing rate for determining the operating lease asset and liability. Management evaluates its estimates on an ongoing basis. Although estimates are based on the Company's historical experience, knowledge of current events, and actions it may undertake in the future, actual results may ultimately materially differ from these estimates and assumptions.

Concentration of credit risk and off-balance sheet risk

Financial instruments which potentially subject the Company to significant concentration of credit risk consist of cash and cash equivalents and investments. The Company maintains deposits in federally insured financial institutions in excess of federally insured limits. The Company has not experienced any losses in such accounts, and management believes that the Company is not exposed to significant credit risk due to the financial position of the depository institutions in which those deposits are held. The Company's investment policy includes guidelines for the quality of the related institutions and financial instruments and defines allowable investments that the Company may invest in, which the Company believes minimizes the exposure to concentration of credit risk.

Cash, cash equivalents, and restricted cash

Cash and cash equivalents include cash in readily available checking and savings accounts, money market funds, commercial paper, and corporate debt securities. The Company considers all highly liquid investments with an original maturity of three months or less from the date of purchase to be cash equivalents.

The Company had deposited cash of $408,000 and $312,000 as of December 31, 2021 and 2020, respectively, to secure a letter of credit in connection with the lease of the Company's facilities (see Note 11). The Company has classified the restricted cash as a noncurrent asset on its consolidated balance sheets.

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the consolidated balance sheets that sum to the total of the same amounts shown in the consolidated statements of cash flows (in thousands):

	December 31,	
	2021	2020
Cash and cash equivalents	$ 360,487	$ 65,376
Restricted cash	408	312
Total cash, cash equivalents and restricted cash as shown on the consolidated statements of cash flows	$ 360,895	$ 65,688

Investments

The Company classifies all marketable securities as available-for-sale, as the sale of such securities may be required prior to maturity. Management determines the appropriate classification of its investments in debt securities at the time of purchase. Investments with original maturities beyond three months at the date of purchase and which mature at, or less than 12 months from, the balance sheet date are classified as short-term investments. Available-for-sale securities are carried at fair value, with the unrealized gains and losses reported as accumulated other comprehensive income (loss) until realized. The amortized cost of available-for-sale debt securities is adjusted for amortization of premiums and accretion of discounts to maturity. Such amortization and accretion are included in interest income. The Company regularly reviews all its investments for other-than-temporary declines in fair value. The review includes the consideration of the cause of the impairment, including the creditworthiness of the security issuers, the number of securities in an unrealized loss position, the severity and duration of the unrealized losses, whether the Company has the intent to sell the securities and whether it is more likely than not that the Company will be required to sell the securities before the recovery of their amortized cost basis. When the Company determines that the decline in fair value of an investment is below its accounting basis and the decline is other-than-temporary, the Company reduces the carrying value of the security it holds and records a loss for the amount of such decline. Realized gains and losses and declines in value judged to be other than temporary, if any, on available-for-sale securities are included in other income or expense. The cost of securities sold is based on the specific identification method. Interest and dividends on securities classified as available-for-sale are included in interest income.

Fair value measurements

Certain assets and liabilities are carried at fair value under US GAAP. Fair value is defined as an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. Financial assets and liabilities carried at fair value are classified and disclosed in one of the following three levels of the fair value hierarchy, of which the first two are considered observable and the last is considered unobservable:

Level 1—Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities.

Level 2—Quoted prices for similar assets and liabilities in active markets, quoted prices in markets that are not active, or inputs which are observable, either directly or indirectly, for substantially the full term of the asset or liability.

Level 3—Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable (i.e., supported by little or no market activity).

Property and equipment, net

Property and equipment are stated at cost less accumulated depreciation. Depreciation and amortization are calculated using the straight-line method over the estimated useful lives of the respective assets, generally three to seven years. Leasehold improvements are amortized over the shorter of the estimated useful lives of the assets or the remaining lease term.

Impairment of long-lived assets

The Company continually evaluates long-lived assets for potential impairment when events or changes in circumstances indicate the carrying value of the assets may not be recoverable. Recoverability is measured by comparing the book values of the assets to the expected future net undiscounted cash flows that the assets are expected to generate. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the book values of the assets exceed their fair value. The Company did not recognize any impairment losses for the years ended December 31, 2021 and 2020.

Leases

The Company leases real estate facilities and equipment under non-cancelable and cancelable operating leases with various expiration dates through fiscal year 2032. At the inception of an arrangement, the Company determines whether the arrangement is or contains a lease based on the unique facts and circumstances present, the existence of an identified asset(s), if any, and the Company’s control over the use of the identified asset(s), if applicable.

Operating leases are included in operating lease assets and in operating lease liabilities in the accompanying consolidated balance sheets. Operating lease assets represent the Company’s right to use an underlying asset for the lease term, and lease liabilities represent the Company’s obligation to make lease payments arising from the lease. Operating lease liabilities are recognized at the lease commencement date based on the present value of lease payments over the lease term discounted based on the more readily determinable of (i) the rate implicit in the lease or (ii) the Company’s incremental borrowing rate (which is the estimated rate the Company would be required to pay for a collateralized borrowing equal to the total lease payments over the term of the lease). Because the Company’s operating leases generally do not provide an implicit rate, the Company estimates its incremental borrowing rate based on the information available at lease commencement date for borrowings with a similar term.

The Company’s operating lease assets are measured based on the corresponding operating lease liability adjusted for (i) payments made to the lessor at or before the commencement date, (ii) initial direct costs incurred and (iii) tenant incentives under the lease. The Company does not assume renewals or early terminations unless it is reasonably certain to exercise these options at commencement. The Company elected the practical expedient which allows the Company to not allocate consideration between lease and non-lease components. Variable lease payments are recognized in the period in which the obligations for those payments are incurred. In addition, the Company elected the practical expedient such that it does not recognize lease assets or lease liabilities for leases with a term of 12 months or less of all asset classes. Operating lease expense is recognized on a straight-line basis over the lease term. Certain of the Company's real estate leases include tenant improvement allowances, which are recognized as lease incentives and amortized on a straight-line basis over the lease term as an offset to rent expense.

Research and development expense

Research and development expenses consist of external and internal costs associated with the Company’s research and development activities, including its discovery and research efforts and the preclinical and clinical development of its product candidates. Research and development costs are expensed as incurred. The Company’s research and development expenses include external costs, consisting of expenses incurred under arrangements with third parties, such as contract research organizations (CROs), contract manufacturing organizations (CMOs), consultants and its

scientific advisors; and internal costs, consisting of employee-related expenses, including salaries, benefits, and stock-based compensation for those individuals involved in research and development efforts, the costs of laboratory supplies and acquiring, developing and manufacturing preclinical study materials, and facilities and depreciation, which include direct and allocated expenses for rent of facilities and depreciation of equipment.

The Company records accruals for estimated research and development costs, comprising payments for work performed by third party contractors, laboratories, and others. Some of these contractors bill monthly based on actual services performed, while others bill periodically based upon achieving certain contractual milestones. For the latter, the Company accrues the expenses as goods or services are used or rendered. Non-refundable advance payments for goods or services that will be used or rendered for future research and development activities are deferred and capitalized as prepaid expenses until the related goods are delivered or services are performed.

In-process research and development expense

The Company has acquired rights as part of asset acquisitions or in-licenses to develop and commercialize product candidates. Upfront payments that relate to the acquisition of a new drug compound, as well as pre-commercial milestone payments, are immediately expensed as in-process research and development (IPR&D) in the period in which they are incurred, provided that the new drug compound did not also include processes or activities that would constitute a “business” as defined under US GAAP, the drug has not achieved regulatory approval for marketing and, absent obtaining such approval, has no established alternative future use. The Company accounts for contingent consideration payable upon achievement of certain regulatory, development or sales milestones in such asset acquisitions when the underlying contingency is probable and estimable. Milestone payments made to third parties subsequent to regulatory approval will be capitalized as intangible assets and amortized over the estimated remaining useful life of the related product.

Patent costs

The Company expenses all costs as incurred in connection with patent applications (including direct application fees, and the legal and consulting expenses related to making such applications) and such costs are included in general and administrative expenses in the consolidated statements of operations and comprehensive loss.

Deferred offering costs

The Company capitalizes certain legal, professional accounting and other third-party fees that are directly associated with in-process equity financings as deferred offering costs until such financings are consummated. After consummation of the equity financing, these costs are recorded in stockholders’ deficit as a reduction of proceeds generated as a result of the offering. Should the in-process equity financing be abandoned, the deferred offering costs will be expensed immediately as a charge to operating expenses in the consolidated statements of operations and comprehensive loss. There were no deferred offering costs as of December 31, 2021 and 2020.

Common stock valuation

Due to the absence of an active market for the Company’s common stock prior to the IPO, the Company utilized methodologies, approaches and assumptions consistent with the American Institute of Certified Public Accountants’ Audit and Accounting Practice Guide: Valuation of Privately-Held Company Equity Securities Issued as Compensation to estimate the fair value of its common stock. In determining the exercise prices for options granted, the Company has considered the fair value of the common stock as of the grant date. Prior to the IPO, the fair value of the common stock was determined based upon a variety of factors, including valuations of the Company’s common stock performed with the assistance of independent third-party valuation specialists; the Company’s stage of development and business strategy, including the status of research and development efforts of its product candidates, and the material risks related to its business and industry; the Company’s business conditions and projections; the Company’s results of operations and financial position, including its levels of available capital resources; the valuation of publicly traded companies in the life sciences and biotechnology sectors, as well as recently completed mergers and acquisitions of peer companies; the lack of marketability of the Company’s common stock as a private company; the prices of the Company’s convertible preferred stock sold to investors in arm’s length transactions and the rights, preferences and privileges of its convertible preferred

stock relative to those of its common stock; the likelihood of achieving a liquidity event for the holders of the Company's common stock, such as an initial public offering or a sale of the Company given prevailing market conditions; trends and developments in its industry; the hiring of key personnel and the experience of management; and external market conditions affecting the life sciences and biotechnology industry sectors. Significant changes to the key assumptions underlying the factors used could result in different fair values of common stock at each valuation date.

After the completion of the IPO, the fair value of each share of common stock is based on the closing price of the Company's common stock as reported by the Nasdaq Global Select Market (Nasdaq).

Stock-based compensation

The Company measures employee and nonemployee stock-based awards based on the fair value on the date of grant and records compensation expense on a straight-line basis over the requisite service period of the award. The Company records the expense for stock-based awards subject to performance-based milestone vesting over the implied service period when management determines that achievement of the milestone is probable. Management evaluates when the achievement of a performance-based milestone is probable based on the expected satisfaction of the performance conditions at each reporting date. All stock-based compensation costs are recorded in the consolidated statements of operations and comprehensive loss based upon the underlying employees' or nonemployees' roles within the Company. Forfeitures are accounted for as they occur.

The fair value of stock option grants and shares purchasable under the Company's 2021 Employee Stock Purchase Plan (ESPP) is estimated on the date of grant using the Black-Scholes options-pricing model, which requires inputs based on certain subjective assumptions, including the:

- Fair value of common stock. As there was no active market for the Company's common stock prior to the IPO, the Company estimated the fair value of common stock on the date of grant based on the then current facts and circumstances.

- Risk-free interest rate. The risk-free interest rate is based on the US Treasury zero-coupon issues in effect at the time of grant for periods corresponding with the expected term of the stock-based awards.

- Expected volatility. Given that the Company's common stock was privately held prior to the IPO, there was no active trading market for its common stock. The Company derived the expected volatility from the average historical volatilities over a period approximately equal to the expected term of comparable publicly traded companies within its peer group that were deemed to be representative of future stock price trends. The Company will continue to apply this process until a sufficient amount of historical information regarding the volatility of its own stock price becomes available.

- Expected term. The expected term represents the period that the stock-based awards are expected to be outstanding. The expected term of stock options issued is determined using the simplified method (based on the mid-point between the vesting date and the end of the contractual term) as the Company has concluded that its stock option exercise history does not provide a reasonable basis upon which to estimate expected term.

- Expected dividend yield. The Company has never paid dividends on its common stock and does not anticipate paying any dividends in the foreseeable future. Therefore, the Company used an expected dividend yield of zero.

The fair value of each restricted common stock award is estimated on the date of grant based on the fair value of the Company's common stock on that same date.

Classification and accretion of convertible preferred stock

The Company's convertible preferred stock was classified outside of stockholders' equity (deficit) on the consolidated balance sheets because the holders of such shares had liquidation rights in the event of a deemed liquidation that, in certain situations, was not solely within the control of the Company and would require the redemption of the then-outstanding convertible preferred stock. The convertible preferred stock was not redeemable, except in the event of a deemed liquidation. Because the occurrence of a deemed liquidation event was not probable, the carrying values of the convertible preferred stock were not being accreted to their redemption values. Subsequent adjustments to the carrying values of the convertible preferred stock would have been made only when a deemed liquidation event became probable.

Preferred stock purchase right liabilities

The Company had entered into convertible preferred stock financings where, in addition to the initial closing, investors agreed to buy, and the Company agreed to sell, additional shares of that convertible preferred stock at a fixed price in the event that certain conditions were met or agreed upon milestones were achieved. The Company evaluated this purchase right and assessed whether it met the definition of a freestanding instrument and, if so, determined the fair value of the purchase right liability and recorded it on the balance sheet with the remainder of the proceeds raised allocated to convertible preferred stock. The preferred stock purchase right liability was revalued at each reporting period with changes in the fair value of the liability recorded as change in fair value of preferred stock purchase right liability in the consolidated statements of operations and comprehensive loss. The preferred stock purchase right liability was revalued at settlement and the resultant fair value, if any, was then reclassified to convertible preferred stock at that time.

Income taxes

The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in the Company's consolidated financial statements or tax returns. Under this method, deferred tax assets and liabilities are determined based on differences between the financial statement carrying amounts and the tax bases of the assets and liabilities using the enacted tax rates in effect in the years in which the differences are expected to reverse. A valuation allowance against deferred tax assets is recorded if, based on the weight of the available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

The Company accounts for uncertainty in income taxes recognized in the consolidated financial statements by applying a two-step process to determine the amount of tax benefit to be recognized. First, the tax position must be evaluated to determine the likelihood that it will be sustained upon external examination by the taxing authorities. If the tax position is deemed more-likely-than-not to be sustained, the tax position is then assessed to determine the amount of benefit to recognize in the consolidated financial statements. The amount of the benefit that may be recognized is the largest amount that has a greater than 50% likelihood of being realized upon ultimate settlement. The provision for income taxes includes the effects of any resulting tax reserves, or unrecognized tax benefits, that are considered appropriate as well as the related net interest and penalties. As of December 31, 2021, the Company's tax years since inception are subject to examination by taxing authorities due to the Company's unutilized net operating losses and tax credits.

Comprehensive income (loss)

The Company reports all components of comprehensive income (loss), including net loss, in the consolidated financial statements in the period in which they are recognized. Comprehensive income (loss) is defined as the change in equity during a period from transactions and other events and circumstances from non-owner sources, including unrealized gains and losses on investments. Other comprehensive income (loss) includes unrealized gains and losses on investments, which was the only difference between net loss and comprehensive loss for the applicable periods.

Net loss per share

The Company's net loss is equivalent to net loss attributable to common stockholders for all periods presented. Basic net loss per share is calculated by dividing the net loss by the weighted-average number of common shares outstanding during the period, without consideration of potentially dilutive securities. Diluted net loss per share is computed by dividing the net loss by the weighted-average number of common shares and potentially dilutive securities outstanding for the period. For purposes of the diluted net loss per share calculation, the convertible preferred stock (prior to the IPO), options to purchase common stock, shares purchasable under the ESPP and common stock subject to repurchase related to unvested restricted stock and options early exercised are considered to be potentially dilutive securities. Basic and diluted net loss per share is presented in conformity with the two-class method required for participating securities as the convertible preferred stock is considered a participating security because it participates in dividends with common stock. The Company also considers the shares issued upon the early exercise of stock options subject to repurchase to be participating securities because holders of such shares have non-forfeitable dividend rights in the event a dividend is paid on common stock. The Company's participating securities do not have a contractual obligation to share in the Company's losses. As such, the net loss was attributed entirely to common stockholders. As the Company has reported a net loss for all periods presented, diluted net loss per common share is the same as basic net loss per common share for those periods, since dilutive common shares are not assumed to have been issued if their effect is anti-dilutive.

Segments

The Company has determined that its chief executive officer is the chief operating decision maker (CODM). The Company operates and manages the business as one reporting and one operating segment, which is the business of discovering and developing precision medicines for the benefit of patients with cancer. The Company's CODM reviews financial information on an aggregate basis for purposes of allocating resources and evaluating financial performance. All of the Company's assets are located in the United States.

Recently adopted accounting pronouncements

In August 2018, the FASB issued ASU 2018-15, Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (ASU 2018-15). The new standard will align the requirements for capitalizing implementation costs for hosting arrangements (services) with costs for internal-use software (assets). As a result, certain implementation costs incurred in hosting arrangements will be deferred and amortized. The Company adopted ASU 2018-15 on January 1, 2021, and the adoption had an immaterial impact on its consolidated financial statements and related disclosures.

Recently issued accounting pronouncements not yet adopted

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies that the Company adopts as of the specified effective date. The Company qualifies as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012 (JOBS Act) and has elected not to "opt out" of the extended transition related to complying with new or revised accounting standards, which means that when a standard is issued or revised and it has different application dates for public and nonpublic companies, the Company can adopt the new or revised standard at the time nonpublic companies adopt the new or revised standard and can do so until such time that the Company either (i) irrevocably elects to "opt out" of such extended transition period or (ii) no longer qualifies as an emerging growth company.

In June 2016, the FASB issued ASU 2016-13, Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments (ASU 2016-13) and also issued subsequent amendments to the initial guidance: ASU 2018-19, ASU 2019-04, ASU 2019-05, and ASU 2019-11. The standard requires that credit losses be reported using an expected losses model rather than the incurred losses model that is currently used, and it establishes additional disclosure requirements related to credit risks. For available-for-sale debt securities with expected credit losses, this standard now requires allowances to be recorded instead of reducing the amortized cost of the investment. This guidance was originally effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years, and early adoption was permitted. In November 2019, the FASB subsequently issued ASU 2019-10, Financial Instruments—Credit Losses (Topic 326), Derivatives and Hedging (Topic 815), and Leases (Topic 842): Effective Dates,

whereby the effective date of this standard for smaller reporting companies was deferred to fiscal years beginning after December 15, 2022, including interim periods within those fiscal years, and early adoption is still permitted. The Company plans to adopt ASU 2016-13, and related updates, effective January 1, 2022, and does not anticipate it will have a material impact on its consolidated financial statements and related disclosures upon adoption.

In August 2020, the FASB issued ASU 2020-06, Debt: Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40) (ASU 2020-06), which simplifies the accounting for convertible instruments and contracts in an entity's own equity. This guidance is effective for the Company in its annual reporting period beginning after December 15, 2023, including interim periods within that reporting period, with early adoption permitted only as of annual reporting periods beginning after December 15, 2020. The Company plans to adopt ASU 2020-06 effective January 1, 2022 and does not anticipate it will have a material impact on the Company's consolidated financial statements and related disclosures upon adoption.

Note 3. Fair value measurements

The following tables summarize the Company's financial assets and liabilities measured at fair value on a recurring basis and their respective input levels based on the fair value hierarchy (in thousands):

		Fair value measurements as of December 31, 2021 using		
	December 31, 2021	Quoted prices in active markets for identical assets (level 1)	Significant other observable inputs (level 2)	Significant unobservable inputs (level 3)
Assets:				
Money market funds[1]	$ 351,625	$ 351,625	$ —	$ —
US treasury securities[2]	18,097	18,097	—	—
Corporate debt securities[2]	2,822	—	2,822	—
Commercial paper[2]	31,566	—	31,566	—
Supranational debt securities[2]	1,503	—	1,503	—
US treasury securities[3]	44,770	44,770	—	—
Total fair value of assets	$ 450,383	$ 414,492	$ 35,891	$ —

(1) Included as cash and cash equivalents on the consolidated balance sheets.
(2) Included as short-term investments on the consolidated balance sheets.
(3) Included as long-term investments on the consolidated balance sheets.

As of December 31, 2021, there were no financial liabilities measured at fair value on a recurring basis.

		Fair value measurements as of December 31, 2020 using		
	December 31, 2020	Quoted prices in active markets for identical assets (level 1)	Significant other observable inputs (level 2)	Significant unobservable inputs (level 3)
Assets:				
Money market funds[1]	$ 57,238	$ 57,238	$ —	$ —
Commercial paper[1]	900	—	900	—
US treasury securities[2]	38,492	38,492	—	—
Corporate debt securities[2]	3,793	—	3,793	—
Commercial paper[2]	11,040	—	11,040	—
Total fair value of assets	$ 111,463	$ 95,730	$ 15,733	$ —
Liabilities:				
Preferred stock purchase right liability	1,615	—	—	1,615
Total fair value of liabilities	$ 1,615	$ —	$ —	$ 1,615

(1) Included as cash and cash equivalents on the consolidated balance sheets.
(2) Included as short-term investments on the consolidated balance sheets.

The carrying amounts of the Company's financial instruments, including cash, prepaid and other current assets, accounts payable, and accrued expenses and other current liabilities, approximate fair value due to their short maturities. None of the Company's non-financial assets or liabilities are recorded at fair value on a non-recurring basis. No transfers between levels have occurred during the periods presented. There are uncertainties on the fair value measurement of the instrument classified under Level 3 due to the use of unobservable inputs and interrelationships between these unobservable inputs, which could result in higher or lower fair value measurements.

Cash equivalents consist of money market funds and commercial paper, and short-term investments consist of US treasury securities, corporate debt securities, commercial paper and supranational debt securities. The Company obtains pricing information from its investment manager and generally determines the fair value of investment securities using standard observable inputs, including reported trades, broker/dealer quotes, and bid and/or offers.

Preferred stock purchase right liability

As of December 31, 2020, the quantitative elements associated with the Company's Level 3 inputs impacting the fair value measurement of the preferred stock purchase right liability included the fair value per share of the underlying Series B-1 Preferred Stock, the expected term of the purchase right liability, risk-free interest rate, expected dividend yield and expected volatility of the price of the underlying preferred stock. The most significant assumption in the Black-Scholes option-pricing model impacting the fair value of the preferred stock purchase right liability was the fair value of the Company's convertible preferred stock as of each measurement date. The Company determined the fair value per share of the underlying preferred stock by taking into consideration its most recent sales of its convertible preferred stock as well as additional factors that the Company deemed relevant. The Company lacked company-specific historical and implied volatility information of its stock. Therefore, it estimated its expected preferred stock volatility based on the historical volatility of publicly traded peer companies for a term equal to the expected term of the purchase right liability. The risk-free interest rate was determined by reference to the US Treasury yield curve for time periods approximately equal to the expected term of the purchase right liability. The Company estimated a 0% dividend yield based on the expected dividend yield and the fact that the Company never paid or declared dividends. The change in fair value of the purchase right liability was a gain of $7.4 million for the year ended December 31, 2020, included in other income (expense) within the consolidated statements of operations and comprehensive loss. Upon the issuance of the shares of the Company's Series B-2 convertible preferred stock in January 2021, the purchase right liability was revalued with the gain of $1.6 million recorded in change in fair value of the purchase right liability for the year ended December 31, 2021 within the consolidated statements of operations and comprehensive loss. Significant changes in the assumptions could have a material impact on the value of the preferred stock purchase right liability.

The assumptions used in the Black-Scholes option pricing model to determine the fair value of the preferred stock purchase right liability at settlement date and December 31, 2020 were as follows:

	January 20, 2021[1]	December 31, 2020
Fair value of underlying preferred stock	$ 6.11	$ 6.11
Risk-free interest rate	0.07%	0.08%
Expected volatility	74.4%	71.8%
Expected term (in years)	0.00	0.08
Expected dividend yield	—%	—%

(1) The date the purchase right liability was settled.

Note 4. Investments

The following tables summarize the Company's investments accounted for as available-for-sale securities (in thousands, except years):

	December 31, 2021				
	Maturity (in years)	Amortized cost	Unrealized losses	Unrealized gains	Estimated fair value
US treasury securities	1 or less	$ 18,116	$ (19)	$ —	18,097
Corporate debt securities	1 or less	2,824	(2)	—	2,822
Commercial paper	1 or less	31,566	—	—	31,566
Supranational debt securities	1 or less	1,503	—	—	1,503
US treasury securities	1-2	44,911	(141)		44,770
Total		$ 98,920	$ (162)	$ —	$ 98,758

	December 31, 2020				
	Maturity (in years)	Amortized cost	Unrealized losses	Unrealized gains	Estimated fair value
US treasury securities	1 or less	$ 38,489	$ —	$ 3	$ 38,492
Corporate debt securities	1 or less	3,794	(1)	—	3,793
Commercial paper	1 or less	11,040	—	—	11,040
Total		$ 53,323	$ (1)	$ 3	$ 53,325

As of December 31, 2021, there were 19 available-for-sale securities with an estimated fair value of $68.0 million in gross unrealized loss positions. As of December 31, 2020, there were six available-for-sale securities with an estimated fair value of $15.8 million in gross unrealized loss positions. None had been in such position for greater than 12 months. Based on the Company's review of its investments, the Company believes that the unrealized losses were not other-than-temporary as of December 31, 2021 and 2020.

Note 5. Property and equipment, net

Property and equipment, net consisted of the following (in thousands):

	December 31, 2021	December 31, 2020
Construction in process	$ 11,228	$ —
Laboratory equipment	2,488	1,380
Furniture and fixtures	2,455	165
Leasehold improvements	795	795
Computer equipment	567	278
Software	87	70
Office equipment	61	61
Property and equipment	17,681	2,749
Less accumulated depreciation and amortization	(1,727)	(902)
Property and equipment, net	$ 15,954	$ 1,847

Depreciation and amortization expense related to property and equipment was $829,000 and $540,000 for the years ended December 31, 2021 and 2020, respectively.

Note 6. Accrued expenses and other current liabilities

Accrued expenses and other current liabilities consisted of the following (in thousands):

	December 31, 2021	December 31, 2020
Accrued research and development expenses	$ 9,122	$ 6,649
Accrued compensation	7,275	2,416
Unvested early exercised stock option liability	2,884	2,526
Accrued construction in process	1,272	—
Accrued professional services	383	194
Other accruals	483	140
Total	$ 21,419	$ 11,925

Note 7. Asset acquisitions

The following purchased assets were accounted for as asset acquisitions as substantially all of the fair value of the assets acquired were concentrated in a group of similar assets, and the acquired assets did not have outputs or employees. Because the assets had not yet received regulatory approval, the fair value attributable to these assets was recorded as in-process research and development expenses in the Company's consolidated statements of operations and comprehensive loss.

Asana BioSciences, LLC

In November 2020, the Company entered into the Asana Merger Agreement, pursuant to which ASN became its wholly-owned subsidiary. Asana and ASN had previously entered into a license agreement, which was amended and restated prior to the closing of the merger transaction (the Asana License Agreement, and collectively with the Asana Merger Agreement, the Asana Agreements), pursuant to which ASN acquired an exclusive, worldwide license to certain intellectual property rights relating to inhibitors of ERK1 and ERK2 owned or controlled by Asana to develop and commercialize ERAS-007 and certain other related compounds for all applications. The Company has the right to sublicense (through multiple tiers) the licensed rights under the Asana Agreements, subject to certain conditions. The foregoing license is subject to Asana's non-exclusive right to practice the licensed rights to research and conduct preclinical pharmacology activities with a specified combination of compounds, subject to certain specified conditions. Pursuant to the Asana License Agreement, neither Asana nor ASN can directly or indirectly exploit certain classes of competing products, subject to specified exceptions. In addition, the Company is required to use commercially reasonable efforts to develop and obtain regulatory approval for ERAS-007 in the United States, at least one major market country in Europe, and either China or Japan.

Under the Asana Merger Agreement, the Company made an upfront payment of $20.0 million and issued 4,000,000 shares of its Series B-2 convertible preferred stock to Asana at a value of $7.50 per share or a total fair value of $30.0 million. In connection with the Company's IPO, these shares of Series B-2 convertible preferred stock were converted into 3,333,333 shares of the Company's common stock. The Company is obligated to make future development and regulatory milestone cash payments for a licensed product in an amount of up to $90.0 million. Additionally, upon achieving a development milestone related to demonstration of successful proof-of-concept in a specified clinical trial, the Company will also be required to issue 3,888,889 shares of its common stock to Asana. The Company is not obligated to pay royalties on the net sales of licensed products. The Company recorded IPR&D expense of $0 and $50.0 million during the years ended December 31, 2021 and 2020 in connection with the asset acquisition. As of December 31, 2021 and 2020, no milestones had been accrued as the underlying contingencies were not probable or estimable.

Upon the Company's payment to Asana of all merger consideration, including upfront cash and equity payments, the equity payment related to the proof-of-concept development milestone, and all other development milestone payments, with the exception of a specific milestone that does not need to be achieved at such time and will remain subject to payment in the event that such milestone is achieved at a later time, all licensed rights will become fully paid-up, perpetual, and irrevocable. The Asana License Agreement may be terminated by either Asana or the Company in the event of an uncured material breach by the other party. Asana also has the right to terminate the Asana License Agreement if the Company fails to engage in material activities in support of clinical development and commercialization of ERAS-007 for a period of 12 consecutive months, excluding reasons outside of its reasonable control and subject to certain limitations. However, Asana's right to terminate the Asana License Agreement for any reason ends once the Company has paid to Asana all merger consideration, or if Asana's equity interest in the Company is publicly traded and exceeds a certain threshold value. The Company may terminate the Asana License Agreement at any time upon the provision of prior written notice to Asana.

Emerge Life Sciences, Pte. Ltd.

In March 2021, the Company entered into an asset purchase agreement (ELS Purchase Agreement) with Emerge Life Sciences, Pte. Ltd. (ELS) wherein it purchased all rights, title, and interest (including all patent and other intellectual property rights) to EGFR antibodies directed against the EGFR domain II (EGFR-D2) and domain III (EGFR-D3) as well as a bispecific antibody where one arm is directed against EGFR-D2 and the other is directed against EGFR-D3 (the Antibodies). Under the terms of the ELS Purchase Agreement, the Company made an upfront payment of $2.0 million and issued ELS 500,000 shares of the Company's common stock at a value of $3.36 per share or a total fair value of $1.7 million. Under the ELS Purchase Agreement, ELS is committed to performing certain studies on the applicable antibodies to assist in development activities, the costs of which shall be mutually agreed upon and for which the Company will be responsible. The Company recorded IPR&D expense of $3.7 million and $0 during the years ended December 31, 2021 and 2020 in connection with the asset acquisition.

Pursuant to the ELS Purchase Agreement, at any time between 12 months and 36 months after the effective date of the ELS Purchase Agreement, if the Company reasonably determines that none of the Antibodies should be taken into human clinical trials due to safety, efficacy or chemistry, manufacturing and controls (CMC) issues, then the Company has the option to select another antibody developed and solely owned by ELS that is not the subject of a license, collaboration, or option to a third party (the Option). If the Company elects to exercise the Option, then ELS will provide to the Company a list of all available antibodies that meet the aforementioned requirements, and the Company has the right to select one antibody from the list. Upon the Company's selection of an antibody, ELS will assign it all rights, title and interest to such antibody (including patent and other intellectual property rights) subject to any pre-existing obligations or restrictions. In the event that the Company wishes to have ELS conduct any studies on such optioned antibody, then after mutual agreement as to the scope of the studies, the Company will be responsible for the cost for such studies.

Note 8. License agreements

NiKang Therapeutics, Inc.

In February 2020, the Company entered into a license agreement (the NiKang Agreement) with NiKang Therapeutics, Inc. (NiKang) under which the Company was granted an exclusive, worldwide license to certain intellectual property rights owned or controlled by NiKang related to certain SHP2 inhibitors to develop and commercialize ERAS-601 and certain other related compounds for all applications. The Company has the right to sublicense (through multiple tiers) its rights under the NiKang Agreement, subject to certain conditions, and is required to use commercially reasonable efforts to develop and commercialize licensed products. The parties are obligated to negotiate in good faith for a certain period of time to grant NiKang the exclusive commercial distribution rights in greater China once a licensed product reaches a certain development stage.

Under the NiKang Agreement, the Company made an upfront payment of $5.0 million to NiKang and reimbursed NiKang $0.4 million for certain initial manufacturing costs. In addition, the Company paid $7.0 million in April 2020 related to the publication of a US patent application that covered the composition of matter of ERAS-601. The Company is also obligated to pay (i) development and regulatory milestone payments in an aggregate amount of up to $16.0 million for the first licensed product and $12.0 million for a second licensed product, and (ii) commercial milestone payments in an aggregate amount of up to $157.0 million for the first licensed product and $151.0 million for a second licensed product. The Company is also obligated to: (i) pay tiered royalties on net sales of all licensed products in the mid-single digit percentages, subject to certain reductions; and (ii) equally split all net sublicensing revenues earned under sublicense agreements that the Company enters into with any third party before commencement of the first Phase I clinical trial for a licensed product. As of December 31, 2021 and 2020, the Company had accrued $0 and $4.0 million related to a development milestone, respectively. The Company recorded IPR&D expense of $0 and $16.0 million during the years ended December 31, 2021 and 2020, respectively, related to the upfront and milestone payments.

The NiKang Agreement will expire upon the last to expire royalty term, which is determined on a licensed product-by-licensed product and country-by-country basis, and is the later of (i) ten years from the date of first commercial sale, (ii) the last to expire valid claim within the licensed patent rights covering such licensed product, or (iii) the expiration of all regulatory exclusivity for the licensed product in such country. Upon expiration of the NiKang Agreement, on a licensed product-by-licensed product and country-by-country basis, the Company will have a fully paid-up, non-exclusive license to conduct research and to develop and commercialize the licensed products.

The NiKang Agreement may be terminated in its entirety by NiKang in the event of the Company's uncured material breach, which includes its failure to use commercially reasonable efforts to satisfy certain specified clinical development diligence milestones. In addition, NiKang may terminate if the Company, directly or indirectly, commences a legal action challenging the validity or enforceability of any licensed patents. Further, if the Company acquires more than 50% of the equity or assets of a company that owns a competing small molecule that is designed to prevent the same target as set forth in the NiKang Agreement from switching to an enzymatically active state, then the Company must either divest such competing product or terminate the NiKang Agreement. The Company may terminate the NiKang Agreement at any time upon the provision of prior written notice to NiKang. Upon termination of the NiKang Agreement for any reason, all rights and licenses granted to the Company, as well as any sublicenses that the Company granted thereunder, will terminate. In addition, upon any termination (but not expiration) of the NiKang Agreement and upon NiKang's request, the parties are obligated to meet and negotiate in good faith the terms of a license from the Company to NiKang to allow NiKang's continued development, manufacture, and commercialization of the licensed products.

Katmai Pharmaceuticals, Inc.

In March 2020, the Company entered into a license agreement (the Katmai Agreement) with Katmai Pharmaceuticals, Inc. (Katmai) under which the Company was granted an exclusive, worldwide, royalty-bearing license to certain patent rights and know-how controlled by Katmai related to the development of small molecule therapeutic and diagnostic products that modulate EGFR and enable the identification, diagnosis, selection, treatment, and/or monitoring of patients for neuro-oncological applications to develop, manufacture, use, and commercialize ERAS-801 and certain other related compounds in all fields of use. The Company has the right to sublicense (through multiple tiers) its rights under the Katmai Agreement, subject to certain limitations and conditions, and is required to use commercially reasonable efforts to develop, manufacture, and commercialize licensed products and to meet certain specified development and launch milestones by certain dates. The Company is obligated to use commercially reasonable efforts to develop the licensed products first for use within the neuro-oncology field before expanding its development efforts to include other indications in the oncology field. Following the first achievement of a clinical proof-of-concept for any indication, the Company has the right to submit a non-binding offer to Katmai for (i) the purchase of all licensed patent rights, know-how, and other assets owned by Katmai that are necessary or useful for the exploitation of the licensed products or (ii) for the purchase of Katmai. Pursuant to the Katmai Agreement, neither Katmai nor the Company can directly or indirectly exploit certain specified classes of competing products.

The license granted under the Katmai Agreement is subject to The Regents of the University of California's reserved right to (i) use the licensed patent rights and know-how for educational and non-commercial research purposes, and to publish results arising therefrom, and (ii) grant licenses to the licensed know-how to third parties without notice because the licensed know-how is non-exclusively licensed to Katmai by The Regents of the University of California. Further, the license granted under the Katmai Agreement is subject to the rights of the United States government under the Bayh-Dole Act, including (i) a non-exclusive, non-transferable, irrevocable, paid-up license to practice or have practiced the invention claimed by the licensed patent rights throughout the world and (ii) the obligation that any licensed products used or sold in the United States be manufactured substantially in the United States.

Under the Katmai Agreement, the Company made an upfront payment of $5.7 million and Katmai agreed to purchase shares of the Company's Series B-1 convertible preferred stock and Series B-2 convertible preferred stock having an aggregate value of $2.7 million. In April 2020, Katmai purchased 356,000 shares of the Company's Series B-1 convertible preferred stock for $1.8 million, and in January 2021, Katmai purchased 118,666 shares of the Company's Series B-2 convertible preferred stock for $0.9 million. In connection with the Company's IPO, these shares of Series B-1 convertible preferred stock and Series B-2 convertible preferred stock were converted into 395,555 shares of the Company's common stock, in the aggregate. The Company is obligated to make future development and regulatory milestone payments of up to $26.0 million and commercial milestone payments of up to $101.0 million. The Company is also obligated to pay tiered royalties on net sales of each licensed product, at rates ranging from the mid- to high-single digit percentages, subject to a minimum annual royalty payment in the low six figures and certain permitted deductions. The Company recorded IPR&D expense of $0 and $5.7 million in connection with the upfront payment during the years ended December 31, 2021 and 2020, respectively.

The Company's royalty obligations and the Katmai Agreement will expire, on a licensed product-by-licensed product and country-by-country basis, on the earlier of (i) the ten-year anniversary of the expiration of all valid claims included in the licensed patents covering the composition of matter or method of use of such licensed product in such country or (ii) the twentieth anniversary of the first commercial sale of such licensed product in such country. Upon the expiration of the Katmai Agreement, the Company will have a fully paid-up and irrevocable license.

The Katmai Agreement may be terminated in its entirety by either party (i) in the event of an uncured material breach by the other party or (ii) in the event the other party becomes subject to specified bankruptcy, insolvency, or similar circumstances. Provided that the Company is in full compliance with the Katmai Agreement, the Company may terminate the Katmai Agreement upon written notice to Katmai. Upon termination of the Katmai Agreement for any reason, all rights and licenses granted to the Company thereunder will terminate. Upon termination of the Katmai Agreement, the Company is obligated, among other things, to (i) grant an exclusive license to Katmai under all of the Company's right, title and interest in all inventions and know-how developed under the Katmai Agreement existing at the time of termination that are specific to the licensed compounds or products, including without limitation all data and results related to Katmai's exploitation and (ii) transfer to Katmai ownership and possession of all regulatory filings related to the licensed compounds and products. Unless the Katmai Agreement is terminated for the Company's material breach, the parties will negotiate in good faith the financial terms pursuant to which the foregoing actions will be conducted, provided that the Company's performance of such actions may not be conditioned upon the conduct or completion of such negotiations. If the parties are unable to agree upon such terms within the specified time period, then the parties will submit all unresolved matters for resolution by arbitration.

LifeArc

In April 2020, the Company entered into a license agreement with LifeArc (the LifeArc Agreement) under which the Company was granted an exclusive, worldwide license to certain materials, know-how, and intellectual property rights owned or controlled by LifeArc to develop, manufacture, use, and commercialize certain ULK inhibitors for all applications. The Company also has the right to sublicense (through multiple tiers) its rights under the LifeArc Agreement, subject to certain conditions. The foregoing license is subject to LifeArc's retained non-exclusive, irrevocable, worldwide, sublicensable (to its academic collaborators), royalty-free right to use the licensed intellectual property rights within all fields of use for LifeArc's own non-commercial, non-clinical academic research. Notwithstanding its retained rights, LifeArc will not seek to develop or undertake any other ULK1/2 therapeutic development programs either in-house or via third parties until April 2025. The Company is required to use diligent efforts to achieve certain development and regulatory milestones with respect to submission of an IND, initiation of clinical trials, submission of an NDA, and commencement of commercial sales.

Under the LifeArc Agreement, the Company was granted the license at no upfront cost and a period of three months after the effective date to conduct experiments on LifeArc's compounds. Upon completion of this initial testing period, the Company had the option to continue the license and make a one-time license payment of $75,000 to LifeArc, which payment was subsequently made. The Company is obligated to make future development milestone payments for a licensed product of up to $11.0 million and sales milestone payments of up to $50.0 million. The Company is also obligated to pay royalties on net sales of all licensed products, in the low-single digit percentages, subject to certain reductions. The Company recorded IPR&D expense of $0 and $75,000 for the years ended December 31, 2021 and 2020.

The Company's royalty obligations and the LifeArc Agreement will expire, on a licensed product-by-licensed product and country-by-country basis, on the later of (i) ten years from the date of first commercial sale, (ii) when there is no longer a valid patent claim covering such licensed product, or (iii) expiration of regulatory exclusivity for the licensed product in such country. Upon expiration of the LifeArc Agreement, all rights and licenses granted to the Company and under the LifeArc Agreement will continue on a fully paid-up basis.

The LifeArc Agreement may be terminated in its entirety by either LifeArc or the Company in (i) the event of an uncured material breach by the other party or (ii) in the event the other party becomes subject to an order by a court of competent jurisdiction for winding-up or dissolution or similar circumstances. Further, LifeArc may terminate the LifeArc Agreement by giving written notice to the Company if (i) the Company fails to comply with its diligence obligations and fails to take remedial actions, (ii) the Company fails to agree on a mechanism to cure a persistent breach, or (iii) the Company fails to provide proof of the insurance coverage as required under the LifeArc Agreement. The Company may terminate the agreement at any time upon the provision of written notice to LifeArc.

Upon termination of the LifeArc Agreement for any reason, all rights and licenses granted to the Company, as well as any sublicenses the Company granted thereunder, will terminate. In addition, upon termination of the LifeArc Agreement for any reason other than its natural expiration or termination by the Company for LifeArc's material breach, LifeArc has an option to negotiate an exclusive, worldwide, sublicensable license to commercialize any patent rights, technical and clinical data, and any development results relating to the licensed products that are owned or controlled by the Company for the purpose of developing, manufacturing and commercializing the licensed products on terms to be negotiated between the parties.

University of California, San Francisco

In December 2018, the Company entered into a license agreement, as amended (the UCSF Agreement), with The Regents of the University of California, San Francisco (the Regents), under which the Company was granted an exclusive, worldwide, royalty-bearing license under certain patent rights claiming novel covalent inhibitors of GTP- and GDP-bound RAS for the development and commercialization of products covered by such patent rights for the prevention, treatment and amelioration of human cancers and other diseases and conditions. The UCSF Agreement was amended in May 2021. The Company has the right to sublicense (through multiple tiers) its rights under the UCSF Agreement, subject to certain conditions. The foregoing license is subject to various retained rights and restrictions, including (i) the Regents' reserved right to make, use and practice the licensed patent rights and any technology relating thereto for educational and research purposes, (ii) Howard Hughes Medical Institute's non-exclusive, fully paid-up, irrevocable worldwide license to use the licensed patent rights for research purposes, (iii) Howard Hughes Medical Institute's statement of policy on research tools, and (iv) the obligations to the US government under the Bayh-Dole Act, including the obligation to report on the utilization of the invention covered by the licensed patent rights and a non-exclusive, non-transferable, irrevocable, paid-up license to practice or have practiced such invention throughout the world. The Company is required to use diligent efforts to proceed with the development and commercialization of licensed products including by achieving certain milestone events within the specified time periods.

Under the UCSF Agreement, the Company made upfront payments of $50,000 to the Regents and pays the Regents an annual license maintenance fee during the term of the license, but such fee will not be due on any anniversary if, on that date, the Company is making royalty payments to the Regents. The Company is obligated to make future development and regulatory milestone payments of up to $6.4 million and a sales milestone payment of $2.0 million for either of the first two licensed products. The Company is also obligated to pay royalties on net sales of all licensed products in the low-single digit percentages, subject to a minimum annual royalty payment in the low six figures, commencing on the year of the first sale of a licensed product and continuing, on a licensed product-by-licensed product and country-by-country basis, until there are no valid claims of the licensed patent rights covering the licensed product in such country.

Additionally, the Company is obligated to pay tiered sublicensing fees, with the first two tiers in the low-to-mid teen percentages and the third tier at 30%, on certain fees the Company receives from any sublicense that the Company grants, depending on the stage of development of a licensed product when such sublicense is granted. Prior to the execution of the amendment, the Company was obligated to make a cash payment to the Regents in the event of the Company's initial public offering, a change of control transaction or a reverse merger (the Corporate Milestone). In the amendment, the amount of the cash payment payable upon the Company's achievement of a Corporate Milestone was reduced and the Company agreed to issue the Regents 944,945 shares of the Company's common stock, which issuance was not contingent upon the achievement of a Corporate Milestone and occurred in May 2021. In August 2021, following the achievement of the Corporate Milestone, the Company made a cash payment to the Regents in the amount of $1.7 million. The Company recorded IPR&D expense of $7.2 million during the year ended December 31, 2021 related to the issuance of these 944,945 common stock shares and the Corporate Milestone cash payment. No IPR&D expense was recorded during the year ended December 31, 2020.

The UCSF Agreement will expire upon the expiration of the last of the licensed patent rights. The UCSF Agreement may be terminated in its entirety by the Regents (i) for the Company's uncured breach; (ii) for the Company's bankruptcy; or (iii) if the Company challenges, directly or indirectly, the validity or enforceability of any licensed patents. Further, if the Company fails to satisfy any diligence milestones, the Regents has the right and option to either terminate the UCSF Agreement or modify the exclusive license granted thereunder to a non-exclusive license. The Company may terminate the UCSF Agreement in its entirety or on a country-by-country basis at any time upon the provision of written notice to the Regents. Upon termination of the UCSF Agreement for any reason, all rights and licenses granted to the Company thereunder will terminate.

Note 9. Stockholders' equity (deficit)

Under its Amended and Restated Certificate of Incorporation dated April 15, 2020, the Company was authorized to issue 147,027,681 shares of its common stock, par value of $0.0001 per share. In February 2021, the Company's Board of Directors increased the authorized number of shares of its common stock to 156,000,000 shares. In connection with the IPO, on July 20, 2021, the Company amended and restated its certificate of incorporation to, among other things, (i) increase the number of authorized shares of common stock from 156,000,000 to 800,000,000 and (ii) authorize 80,000,000 shares of undesignated preferred stock with a par value of $0.0001 per share.

Convertible preferred stock

In 2018 and 2019, the Company issued a total of 38,103,681 shares of its Series A convertible preferred stock at $1.667 per share. The Company received proceeds of approximately $63.4 million, net of issuance costs.

In April 2020, the Company entered into a Series B convertible preferred stock purchase agreement (the Series B Agreement) under which it issued 27,481,001 shares of its Series B-1 convertible preferred stock at various closing dates in 2020, for cash, at a price of $5.00 per share, for net proceeds of $137.0 million (the Series B-1 Closing). The Series B Agreement contained provisions that potentially obligated the Company to issue 13,175,191 shares of Series B-2 convertible preferred stock at $7.50 per share in an additional closing to certain Series B-1 Closing purchasers, upon the achievement of certain milestones as defined in the Series B Agreement, which purchase right would terminate
on September 30, 2022 or at certain specified events, including an initial public offering of the Company, if any (the Series B-2 Closing). In the event that a Series B-1 Closing purchaser failed to purchase all of its required shares in the subsequent Series B-2 Closing, each of the Series B-1 convertible preferred shares held by such purchaser would automatically be converted into one-tenth of a share of the Company's common stock.

The Company determined its obligation to issue additional shares of its Series B-2 convertible preferred stock in the Series B-1 Closing represented a freestanding financial instrument that required liability accounting. This freestanding preferred stock purchase right liability for the Series B-2 Closing was recorded at fair value and was remeasured at each reporting period. As of the Series B-1 Closing, the estimated fair value of the preferred stock purchase right liability was $9.0 million. The Company recorded any changes in the fair value of the Series B-2 convertible preferred stock purchase right liability as changes in the fair value of convertible preferred stock purchase right liability in the accompanying consolidated statements of operations and comprehensive loss, and recorded a gain of $7.4 million for the year ended December 31, 2020. To satisfy its obligation, in January 2021, the Company sold 13,175,191 shares of its Series B-2 convertible preferred stock and an additional 2,756,581 shares of its Series B-2 convertible preferred stock at a price of $7.50 per share and received aggregate net proceeds of $119.4 million.

Also in 2020, the Company issued 4,000,000 shares of its Series B-2 convertible preferred stock at $7.50 per share in connection with an asset acquisition (see Note 7).

Convertible preferred stock consisted of the following as of December 31, 2020 (in thousands, except share data):

	December 31, 2020				
	Preferred shares authorized	Preferred shares issued and outstanding	Carrying value	Liquidation preference	Common stock issuable upon conversion
Series A preferred stock	38,103,681	38,103,681	$ 63,403	$ 63,519	31,753,064
Series B-1 preferred stock	28,741,400	27,481,001	128,002	137,405	22,900,819
Series B-2 preferred stock	30,777,328	4,000,000	30,000	30,000	3,333,333
Total	97,622,409	69,584,682	$ 221,405	$ 230,924	57,987,216

Upon the closing of the IPO in July 2021, all shares of convertible preferred stock then outstanding converted into 71,263,685 shares of common stock. There were no shares of convertible preferred stock outstanding as of December 31, 2021.

Convertible preferred stock rights and preferences

The rights and preferences for convertible preferred stock are detailed in the Company's final prospectus (the Prospectus) filed with the Securities and Exchange Commission (the SEC) pursuant to Rule 424(b)(4) under the Securities Act of 1933, as amended (the Securities Act), on July 16, 2021.

Common stock

The Company had 800,000,000 and 147,027,681 shares of its common stock authorized as of December 31, 2021 and 2020, respectively. The Company had 121,382,547 and 25,189,673 shares of its common stock issued and 119,102,505 and 21,923,173 shares of common stock outstanding as of December 31, 2021 and 2020, respectively.

Shares of common stock subject to repurchase

During 2018, the Company issued 1,458,332 shares of restricted stock for cash at a price of $0.0001 per share. The restricted stock vests 25% one year from the vesting commencement date and monthly thereafter over a three-year period and is subject to repurchase by the Company in the event of any voluntary or involuntary termination of services to the Company prior to vesting. Any shares subject to repurchase by the Company are not deemed, for accounting purposes, to be outstanding until those shares vest. As of December 31, 2021 and 2020, 212,674 shares and 577,259 shares of common stock, respectively, were subject to repurchase by the Company. The unvested stock liability related to these awards is immaterial for all periods presented. For the years ended December 31, 2021 and 2020, 364,585 and 364,582 shares vested, respectively.

Note 10. Stock-based compensation

In July 2021, the Company's board of directors adopted and the Company's stockholders approved the Company's 2021 Incentive Award Plan (the 2021 Plan), which became effective in connection with the IPO. Upon the adoption of the 2021 Plan, the Company ceased making equity grants under its 2018 Equity Incentive Plan (the 2018 Plan). Under the 2021 Plan, the Company may grant stock options, restricted stock, restricted stock units, stock appreciation rights, and other stock or cash-based awards to individuals who are then employees, officers, directors or non-entity consultants of the Company. A total of 15,150,000 shares of common stock were initially reserved for issuance under the 2021 Plan. In addition, the number of shares of common stock available for issuance under the 2021 Plan will be increased annually on the first day of each fiscal year during the term of the 2021 Plan, beginning with the 2022 fiscal year, by an amount equal to the lesser of (i) 5% of the shares of common stock outstanding on the final day of the immediately preceding calendar year or (ii) such smaller number of shares as determined by the Company's board of directors. As of December 31, 2021, there were 14,699,430 stock-based awards available for future grant under the 2021 Plan.

Subsequent to July 2021, no further awards will be granted under the 2018 Plan and all future stock-based awards will be granted under the 2021 Plan. To the extent outstanding options granted under the 2018 Plan are cancelled, forfeited or otherwise terminated without being exercised and would otherwise have been returned to the share reserve under the 2018 Plan, the number of shares underlying such awards will be available for future grant under the 2021 Plan.

Options granted are exercisable at various dates as determined upon grant and will expire no more than ten years from their date of grant. Stock options generally vest over a four-year term. The exercise price of each option shall be determined by the Company's Board of Directors based on the estimated fair value of the Company's stock on the date of the option grant. The exercise price shall not be less than 100% of the fair market value of the Company's common stock at the time the option is granted. For holders of more than 10% of the Company's total combined voting power of all classes of stock, incentive stock options may not be granted at less than 110% of the fair market value of the Company's common stock on the date of grant and for a term that exceeds five years. Early exercise is permitted for certain grants under the 2018 Plan.

Stock options

A summary of the Company's stock option activity under the 2021 Plan and 2018 Plan is as follows (in thousands, except share and per share data and years):

	Shares	Weighted-average exercise price	Weighted-average remaining contractual term (years)	Aggregate intrinsic value
Outstanding at December 31, 2020	6,541,422	$ 0.98	9.23	$ 15,571
Granted	8,320,187	5.93		
Exercised	(736,200)	1.88		
Canceled	(307,197)	2.97		
Outstanding at December 31, 2021	13,818,212	$ 3.87	8.82	$ 163,264
Options exercisable at December 31, 2021	3,161,831	$ 1.63	8.29	$ 44,119

The weighted-average grant date fair value of options granted for the years ended December 31, 2021 and 2020 was $4.16 and $0.82, respectively. As of December 31, 2021, the unrecognized compensation cost related to unvested stock option grants was $32.1 million and is expected to be recognized as expense over approximately 2.91 years. The intrinsic value of the options exercised for the years ended December 31, 2021 and 2020 was $3.1 million and $141,000, respectively.

Certain individuals were granted the ability to early exercise their stock options. The shares of common stock issued from the early exercise of unvested stock options are restricted and continue to vest in accordance with the original vesting schedule. The Company has the option to repurchase any unvested shares at the original purchase price upon any voluntary or involuntary termination. The shares purchased by the employees and non-employees pursuant to the early exercise of stock options are not deemed, for accounting purposes, to be outstanding until those shares vest. The cash received in exchange for exercised and unvested shares related to stock options granted is recorded as a liability for the early exercise of stock options on the accompanying consolidated balance sheets and will be transferred into common stock and additional paid-in capital as the shares vest. As of December 31, 2021 and 2020, there were 1,854,427 shares and 2,131,510 shares subject to repurchase by the Company, respectively. As of December 31, 2021 and 2020, the Company recorded $2.9 million and $2.5 million of liabilities associated with shares issued with repurchase rights, respectively, which is recorded in accrued expenses and other current liabilities.

In January 2019, the Company granted 250,000 options that vest based on a performance milestone. For the year ended December 31, 2021, the Company recognized $115,000 of stock-based compensation associated with the performance-based options as the performance milestone was determined to be probable as of March 31, 2021. As of December 31, 2020, the milestone for the performance-based options was not probable of achievement, and therefore, no compensation expense for performance-based options had been recognized.

The assumptions used in the Black-Scholes option pricing model to determine the fair value of the employee and nonemployee stock option grants were as follows:

	Year Ended December 31,	
	2021	2020
Risk-free interest rate	0.59%-1.34%	0.37%-1.22%
Expected volatility	81.93%-85.35%	74.72%-77.81%
Expected term (in years)	6.08	6.02-6.25
Expected dividend yield	--%	--%

Employee stock purchase plan

In July 2021, the Company's board of directors adopted and the Company's stockholders approved the ESPP, which became effective in connection with the IPO. The ESPP permits participants to contribute up to a specified percentage of their eligible compensation during a series of offering periods of 24 months, each comprised of four six-month purchase periods, to purchase the Company's common stock. The purchase price of the shares will be 85% of the fair market value of the Company's common stock on the first day of trading of the applicable offering period or on the applicable purchase date, whichever is lower. A total of 1,260,000 shares of common stock was initially reserved for issuance under the ESPP. The Company recognized $688,000 of stock-based compensation expense related to the ESPP during the year ended December 31, 2021. As of December 31, 2021, the unrecognized compensation cost related to the ESPP was $3.7 million and is expected to be recognized as expense over approximately 1.28 years. As of December 31, 2021, $102,000 has been withheld on behalf of employees for future purchase under the ESPP and is included in accrued expenses and other current liabilities on the consolidated balance sheet. As of December 31, 2021, 91,987 shares have been issued under the ESPP.

The assumptions used in the Black-Scholes option pricing model to determine the fair value of the stock to be purchased under the ESPP were as follows:

	Year Ended December 31,	
	2021	2020[(1)]
Risk-free interest rate	0.05%-0.64%	--%
Expected volatility	70.99%-91.69%	--%
Expected term (in years)	0.39-2.00	--
Expected dividend yield	--%	--%

(1) The ESPP was not in effect until 2021.

Restricted stock

The Company granted 1,795,827 shares of its restricted stock in 2018, which vest 25% one year from the vesting commencement date and monthly thereafter over a three-year period. The weighted-average grant date fair value of restricted stock granted in 2018 was $0. No shares of restricted stock were granted during the years ended December 31, 2021 and 2020. The restricted stock shares are subject to forfeiture upon the stockholders' termination of employment or service to the Company. Any shares subject to forfeiture are not deemed, for accounting purposes, to be outstanding until those shares vest. As such, the Company recognizes the measurement date fair value of the restricted stock over the vesting period as compensation expense. As of December 31, 2021 and 2020, 212,941 shares and 557,731 shares of common stock, respectively, were subject to forfeiture.

The summary of the Company's restricted stock activity during the year ended December 31, 2021 is as follows:

	Number of restricted stock shares outstanding		Weighted-average grant date fair Value
Nonvested at December 31, 2020	557,731	$	0.001
Vested	(344,790)		0.001
Nonvested at December 31, 2021	212,941	$	0.001

At December 31, 2021, the total unrecognized compensation related to unvested restricted stock awards granted was $0.

Stock-based compensation expense

The allocation of stock-based compensation for all stock awards was as follows (in thousands):

	Year Ended December 31,	
	2021	2020
Research and development	$ 4,957	$ 348
General and administrative	3,374	449
Total	$ 8,331	$ 797

Common stock reserved for future issuance

Common stock reserved for future issuance consisted of the following as of December 31, 2021 and 2020:

	December 31, 2021	December 31, 2020
Conversion of preferred stock outstanding	—	57,987,216
Conversion of preferred stock in future issuance (B-2)	—	10,979,319
Stock options issued and outstanding	13,818,212	6,541,422
Awards available for future grant	14,699,430	2,314,746
Shares available for purchase under the ESPP	1,168,013	—
Total	29,685,655	77,822,703

Note 11. Leases

Operating leases

The Company has facility leases for office space under non-cancellable and cancelable operating leases with various expiration dates through 2032 and equipment under a non-cancellable operating lease with a term expiring in 2026. Operating lease cost was approximately $2.8 million and $1.3 million, including variable lease costs of $429,000 and $355,000, and short-term lease costs of $119,000 and $96,000 during the years ended December 31, 2021 and 2020, respectively. The Company paid $1.1 million and $989,000 in cash for operating leases that were included in the operating activities section of the consolidated statements of cash flows for the years ended December 31, 2021 and 2020, respectively.

The weighted-average remaining lease term and the weighted-average discount rate of the Company's operating leases was 9.86 years and 6.9% at December 31, 2021, respectively. The weighted-average remaining lease term and the weighted-average discount rate of the Company's operating leases was 3.16 years and 7.8% at December 31, 2020, respectively. The weighted-average remaining lease term does not include any renewal options at the election of the Company.

The Company's lease agreements do not contain any material residual value guarantees or material restrictive covenants.

Facility leases

In 2018, the Company entered into a lease agreement for approximately 11,000 square feet of office space in San Diego, California which was subsequently amended resulting in a total of 16,153 square feet of office space leased (the 2018 Lease). The amended space is accounted for as a separate lease. The 2018 Lease was again modified in November 2021 to amend the termination date from May 2024 to April 2022. The Company remeasured the associated lease liability using the incremental borrowing rate at the date of the amendment selected on the basis of the remaining lease term and remaining lease payments and adjusted the operating lease asset accordingly, resulting in a $539,000 gain on remeasurement, which was recorded as other income (expense), net in the consolidated statements of operations and comprehensive loss. The 2018 Lease includes an option to holdover the lease month-to-month following the termination date and the Company plans to exercise this holdover option until it moves into its new corporate headquarters, which is anticipated to occur in the second quarter of 2022. The Company's lease payments consist primarily of fixed rental payments for the right to use the underlying leased assets over the lease terms. The Company is responsible for operating expenses over base operating expenses as defined in the original lease agreement.

In September 2020, the Company entered into a lease agreement for 59,407 square feet of laboratory and office space in San Diego, California (the 2020 Lease), which represented a portion of a new facility that was under construction. The construction and design of the asset was the primary responsibility of the lessor. The Company is involved in certain aspects of construction and design for certain interior features and leasehold improvements that will be beneficial to the Company to better suit its business needs and intended purpose of the space. The lease is accounted for as an operating lease and commenced in August 2021. The lease has an initial term of 10.5 years and includes aggregate monthly payments to the lessor of approximately $39.5 million beginning in January 2023 with a rent escalation clause, and a tenant improvement allowance of approximately $13.4 million. The lease is cancellable at the Company's request after the 84th month with 12 months written notice and a lump-sum cancellation payment of $1.9 million. As discussed in Note 2, the Company provided a letter of credit to the lessor for $312,000, which expires October 31, 2031.

In March 2021, the Company entered into the first amendment to the 2020 Lease to expand the rented premises by 18,421 square feet for additional consideration of $96,000 per month starting in January 2023 with a rent escalation clause and to receive an additional $3.4 million tenant improvement allowance. The payment associated with the option to cancel the lease after the 84th month was increased to $2.5 million, and the letter of credit provided to the lessor was increased to $408,000.

In December 2021, the Company entered into a lease agreement for 29,542 square feet of office and laboratory space in South San Francisco, California (the 2021 Lease). The lease will be accounted for as an operating lease with the associated operating lease assets and liabilities recorded upon commencement which is expected to be in July 2022. The lease has an initial term of 124 months with an option to extend the term by 5 years and includes aggregate monthly payments to the lessor of approximately $34.4 million beginning in November 2022 with a rent escalation clause, and a tenant improvement allowance of approximately $8.2 million. The Company paid a security deposit of $874,000 in December 2021 which was recorded as other assets in the consolidated balance sheets.

Future minimum lease payments under the operating leases with initial lease terms in excess of one year (excluding the 2021 Lease) as of December 31, 2021 are as follows (in thousands):

Year ending December 31,	
2022	287
2023	5,026
2024	5,177
2025	5,333
2026	5,493
Thereafter	30,568
Total lease payments	$ 51,884
Less: Amount representing interest	(16,319)
Less: Tenant improvement allowance receivable	(16,774)
Operating lease liabilities	$ 18,791

Note 12. Commitments and contingencies

As of December 31, 2021 and 2020, there was no litigation against the Company.

Note 13. Income taxes

No provision for federal, state or foreign income taxes has been recorded for the years ended December 31, 2021 and 2020.

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities as of December 31, 2021 and 2020 were as follows (in thousands):

	December 31, 2021	December 31, 2020
Deferred tax assets:		
Net operating loss carryforwards	$ 37,874	$ 11,341
Intangible assets	7,464	5,231
Research and development credits	4,037	657
Operating lease liabilities	4,689	745
Contribution of common stock	4,366	—
Other, net	2,686	646
Total deferred tax assets	61,116	18,620
Deferred tax liabilities:		
Property and equipment	(420)	(293)
Operating lease assets	(4,330)	(555)
Total deferred tax liabilities	(4,750)	(848)
Valuation allowance	(56,366)	(17,772)
Net deferred tax assets	$ —	$ —

During the year ended December 31, 2021, the Company identified an overstatement of the Company's disclosed deferred tax assets and corresponding valuation allowance as of December 31, 2020 relating to the intangible assets arising from the Asana Merger Agreement in November 2020. The merger was a tax-free merger; therefore, the intangible assets should have had a $0 tax basis rather than the previously disclosed $12.4 million of related deferred taxes. There was no impact of this error on the consolidated balance sheets, statements of operations and comprehensive loss or cash flows as of and for the year ended December 31, 2020.

Management concluded that the error was not material to any prior period consolidated financial statements and has therefore corrected the disclosure as an immaterial correction by revising the deferred tax disclosure as of December 31, 2020 and the tax rate reconciliation for the year ended December 31, 2020.

The Company has established a valuation allowance against net deferred tax assets due to the uncertainty that such assets will be realized. The Company periodically evaluates the recoverability of the deferred tax assets. At such time as it is determined that it is more likely than not that deferred tax assets will be realizable, the valuation allowance will be reduced. The Company has recorded a full valuation allowance of $56.4 million as of December 31, 2021, as it does not believe it is more likely than not that the deferred tax assets will be realized primarily due to the generation of pre-tax book losses, the lack of feasible tax-planning strategies, the limited existing taxable temporary differences, and the subjective nature of forecasting future taxable income into the future. The Company increased its valuation allowance by $38.6 million during the year ended December 31, 2021.

A reconciliation of the federal statutory income tax rate and the Company's effective income tax rate is as follows:

	Year ended December 31,	
	2021	2020
Federal statutory income tax rate	21.0%	21.0%
State income taxes, net of federal benefit	6.1	1.3
Change in valuation allowance	(31.4)	(13.5)
Fair value of purchase right liability	0.3	1.5
In-process research and development	—	(10.3)
Other permanent differences	(0.7)	(0.1)
Research and development credits	2.9	—
State net operating loss	2.4	—
Other	(0.6)	0.1
Effective income tax rate	—%	—%

At December 31, 2021, the Company had federal, California and other state net operating loss (NOL) carryforwards of $135.0 million, $133.6 million and $3.1 million, respectively. The federal NOL carryforwards will carryforward indefinitely and can offset 80% of future taxable income each year, the California NOL carryforwards begin to expire in 2038 and the other state NOL carryforwards begin to expire in 2035.

At December 31, 2021, the Company also had federal, California and Massachusetts research tax credit carryforwards of approximately $3.1 million, $2.3 million and $184,000, respectively. The federal research tax credit carryforwards begin to expire in 2038, the California research tax credit carryforward does not expire and can be carried forward indefinitely until utilized and the Massachusetts research tax credit carryforwards begin to expire in 2036.

At December 31, 2021, the Company also had federal and California charitable contribution carryforwards of $17.5 million. The charitable contribution carryforwards begin to expire in 2024.

The above NOL carryforward and the research tax credit carryforwards are subject to an annual limitation under Section 382 and 383 of the Internal Revenue Code of 1986, as amended (IRC), and similar state provisions due to ownership change limitations that have occurred which will limit the amount of NOL and tax credit carryforwards that can be utilized to offset future taxable income and tax, respectively. In general, an ownership change, as defined by Section 382 and 383, results from transactions increasing ownership of certain stockholders or public groups in the stock of the corporation by more than 50 percentage points over a three-year period. The Company has not completed an IRC Section 382/383 analysis regarding the limitation of net operating loss and research and development credit carryforwards. If a change in ownership were to have occurred, additional NOL and tax credit carryforwards could be eliminated or restricted. If eliminated, the related asset would be removed from the deferred tax asset schedule with a corresponding reduction in the valuation allowance. Due to the existence of the valuation allowance, limitations created by future ownership changes, if any, related to the Company's operations in the United States will not impact the Company's effective tax rate.

On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) was enacted in response to the COVID-19 pandemic. The CARES Act, among other things, permits NOL carryovers and carrybacks to offset 100% of taxable income for taxable years beginning before 2021. In addition, the CARES Act allows NOLs incurred in 2018, 2019, and 2020 to be carried back to each of the five preceding taxable years to generate a refund of previously paid income taxes. Due to the Company's history of net operating losses, the CARES Act did not have a material impact on the Company's income tax provision for the years ended December 31, 2021 and 2020.

The Company recognizes a tax benefit from an uncertain tax position when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on the technical merits. Income tax positions must meet a more likely than not recognition at the effective date to be recognized.

A reconciliation of the beginning and ending amount of unrecognized tax benefits for 2021 and 2020, excluding interest and penalties, is as follows (in thousands):

	Year ended December 31,	
	2021	2020
Balance at the beginning of the year	$ 191	$ —
Increase (decrease) related to prior year positions	156	—
Increase related to current year positions	835	191
Balance at the end of the year	$ 1,182	$ 191

Included in the balance of unrecognized tax benefits as of December 31, 2021 is $1.1 million that, if recognized, would reduce the Company's annual effective tax rate, subject to valuation allowance. The Company does not anticipate any significant changes to unrecognized tax benefits over the next 12 months.

The Company has filed income tax returns in the United States, California and Massachusetts. The Company is not currently under examination in any of these jurisdictions, and all of the Company's tax years remain effectively open in all jurisdictions to examination due to net operating loss carryforwards. The Company's policy is to recognize interest expense and penalties related to income tax matters as tax expense. For the years ended December 31, 2021 and 2020, the Company has not recognized any interest or penalties related to income taxes.

Note 14. Net loss per share

The following table summarizes the computation of basic and diluted net loss per share of the Company (in thousands, except share and per share data):

	Year Ended December 31,	
	2021	2020
Net loss	$ (122,764)	$ (101,660)
Weighted-average shares of common stock used in computing net loss per share, basic and diluted	66,290,592	21,037,540
Net loss per share, basic and diluted	$ (1.85)	$ (4.83)

The Company's potentially dilutive securities, which include its convertible preferred stock prior to the IPO, options to purchase common stock, shares purchasable under the ESPP and common stock subject to repurchase related to unvested restricted stock and options early exercised, have been excluded from the computation of diluted net loss per share as the effect would be to reduce the net loss per share. Therefore, the weighted-average number of common shares outstanding used to calculate both basic and diluted net loss per share is the same. The Company excluded the following potential common shares, presented based on amounts outstanding at each period end, from the computation of diluted net loss per share for the periods indicated because including them would have had an anti-dilutive effect:

	Year Ended December 31,	
	2021	2020
Convertible preferred stock issued	—	54,653,883
Conversion of convertible preferred stock in future issuance (B-2)	—	10,979,319
Options to purchase common stock	13,818,212	6,666,515
Restricted stock subject to future vesting	425,615	1,503,303
Options early exercised subject to future vesting	1,854,427	2,686,456
Estimated shares purchasable under the ESPP	384,526	—
Total potentially dilutive shares	16,482,780	76,489,476

Note 15. Retirement plan

The Company sponsors an employee savings plan that qualifies as a deferred salary arrangement under Section 401(k) of the US Internal Revenue Code. Participating employees may defer up to the Internal Revenue Service annual contribution limit. Beginning in 2021, the Company provides a safe harbor contribution of 3.0% of the employee's compensation, not to exceed eligible limits. For the years ended December 31, 2021 and 2020, the Company incurred $533,000 and $0 in expenses related to the safe harbor contribution, respectively.

Note 16. COVID-19 pandemic

The current COVID-19 pandemic, which is impacting worldwide economic activity, poses the risk that the Company or its employees, contractors, suppliers, and other partners may be prevented from conducting business activities for an indefinite period of time, including due to shutdowns that may be requested or mandated by governmental authorities. During the years ended December 31, 2021 and 2020, the Company has not experienced significant impact from the pandemic. The extent to which the COVID-19 pandemic will impact the Company's business will depend on future developments that are highly uncertain and cannot be predicted at this time.

Note 17. Related party transactions

Erasca Foundation

In May 2021, the Company established the Erasca Foundation to provide support such as direct research grants, hardship grants, patient advocacy, patient education in underserved populations, and funding for other initiatives to positively impact society that align with the Company's mission. The Company's chief executive officer and certain board members serve as directors of the Erasca Foundation and the Company's chief executive officer, chief financial officer, and general counsel are also officers of the Erasca Foundation. In July 2021, the Company issued 1,093,557 shares of its common stock to the Erasca Foundation as a contribution and recorded $17.5 million as a contribution of common stock to the Erasca Foundation in the consolidated statements of operations and comprehensive loss. In December 2021, the Company loaned the Erasca Foundation $100,000 in exchange for a non-interest bearing promissory note that matures one year following the date of the note. As of December 31, 2021, $100,000 is recorded as a receivable in prepaid expenses and other current assets in the consolidated balance sheet.

Disgorgement of stockholder's short-swing profits

In August 2021, the Company received $553,000 related to the recovery of short-swing profits from a private investment fund affiliated with one of its board members, a related party, under Section 16(b) of the Securities Exchange Act of 1934, as amended. The Company recognized these proceeds as a capital contribution from a stockholder with an increase to additional paid-in-capital in its consolidated balance sheet and as cash provided by financing activities in its consolidated statement of cash flows.

Note 18. Subsequent events

In March 2022, Erasca Ventures invested $2.0 million in Affini-T Therapeutics, Inc.'s (Affini-T) preferred stock financing, which will be used to develop Affini-T's potential best-in-class T-cell receptor (TCR) cell therapies targeting multiple oncogenic driver mutations, including KRAS G12V and KRAS G12D.

EXHIBIT INDEX

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Form	Date	Number	
3.1	Amended and Restated Certificate of Incorporation of Erasca, Inc.	8-K	7/20/2021	3.1	
3.2	Amended and Restated Bylaws of Erasca, Inc.	8-K	7/20/2021	3.2	
4.1	Specimen stock certificate evidencing the shares of common stock	S-1	6/25/2021	4.1	
4.2	Amended and Restated Stockholders Agreement, dated April 15, 2020, by and among the Registrant and certain of its stockholders	S-1	6/25/2021	4.2	
4.3	Description of Securities				X
10.1#	Erasca, Inc. 2021 Incentive Award Plan and form of stock option agreement and form of restricted stock unit agreement thereunder	S-1/A	7/12/2021	10.2	
10.2#	Erasca, Inc. 2021 Employee Stock Purchase Plan	S-1/A	7/12/2021	10.3	
10.3#	Erasca, Inc. Severance and Change in Control Severance Plan and Summary Plan Description	S-1/A	7/12/2021	10.4	
10.4#	Non-Employee Director Compensation Program	S-1/A	7/12/2021	10.5	
10.5#	Employment Letter Agreement, dated August 18, 2020, by and between Michael D. Varney, Ph.D. and the Registrant	S-1	6/25/2021	10.9	
10.6#	Scientific Advisory Board Agreement, dated August 15, 2020, by and between Michael D. Varney, Ph.D. and the Registrant	S-1	6/25/2021	10.10	
10.7#	Amended and Restated Employment Letter Agreement, dated July 9, 2021, by and between Jonathan E. Lim, M.D. and the Registrant	S-1/A	7/12/2021	10.13	
10.8#	Amended and Restated Employment Letter Agreement, dated July 9, 2021, by and between David M. Chacko, M.D. and the Registrant	S-1/A	7/12/2021	10.14	
10.9#	Amended and Restated Employment Letter Agreement, dated July 9, 2021, by and between Wei Lin, M.D. and the Registrant	S-1/A	7/12/2021	10.15	
10.10#	Amended and Restated Employment Letter Agreement, dated July 9, 2021, by and between Ebun S. Garner and the Registrant	S-1/A	7/12/2021	10.16	
10.11#	Form of Indemnification Agreement for Directors and Officers	S-1/A	7/12/2021	10.17	
10.12†	Lease Agreement, dated September 29, 2020 by and between ARE-SD Region No. 23, LLC and the Registrant, as amended	S-1	6/25/2021	10.18	
10.13†	Lease, dated July 27, 2018, by and between BMR-Road to the Cure LP and the Registrant, as amended				X
10.14†	Exclusive License Agreement, dated December 21, 2018, by and between The Regents of the University of California and the Registrant, as amended	S-1	6/25/2021	10.20	
10.15†	License Agreement, dated February 18, 2020, by and between NiKang Therapeutics, Inc. and the Registrant	S-1	6/25/2021	10.21	
10.16†	Exclusive License Agreement, dated March 12, 2020, by and between Katmai Pharmaceuticals, Inc. and the Registrant				X
10.17†	License Agreement, dated April 16, 2020, by and between LifeArc and the Registrant	S-1	6/25/2021	10.23	

10.18†	Agreement and Plan of Merger, dated November 23, 2020, by and among the Registrant and its wholly-owned subsidiaries, ASN Product Development, Inc. and Asana BioSciences, LLC	S-1	6/25/2021	10.24	
10.19†	Amended and Restated License Agreement, dated November 23, 2020, by and among the Registrant's wholly-owned subsidiaries, ASN Product Development, Inc. and Asana BioSciences, LLC	S-1	6/25/2021	10.25	
23.1	Consent of KPMG LLP, independent registered public accounting firm				X
31.1	Certification of Chief Executive Officer of Erasca, Inc., as required by Rule 13a-14(a) or Rule 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				X
31.2	Certification of Chief Financial Officer of Erasca, Inc., as required by Rule 13a-14(a) or Rule 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				X
32.1*	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				X
32.2*	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				X
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.				X
101.SCH	Inline XBRL Taxonomy Extension Schema Document				X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document				X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document				X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document				X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document				X
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)				X

# Indicates management contract or compensatory plan.
† Portions of this exhibit have been omitted for confidentiality purposes.

* This certification is deemed not filed for purpose of section 18 of the Exchange Act or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act or the Exchange Act.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized**.**

Erasca, Inc.

Date: March 24, 2022

By: /s/ Jonathan E. Lim
Jonathan E. Lim, M.D.
Chairman, Chief Executive Officer and Co-Founder

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Report has been signed below by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

Name	Title	Date
/s/ Jonathan E. Lim **Jonathan E. Lim, M.D.**	Chairman, Chief Executive Officer and Co-Founder (Principal Executive Officer)	March 24, 2022
/s/ David M. Chacko **David M. Chacko, M.D.**	Chief Financial Officer (Principal Financial and Accounting Officer)	March 24, 2022
/s/ James A. Bristol **James A. Bristol, Ph.D.**	Director	March 24, 2022
/s/ Alexander W. Casdin **Alexander W. Casdin**	Director	March 24, 2022
/s/ Bihua Chen **Bihua Chen**	Director	March 24, 2022
/s/ Julie Hambleton **Julie Hambleton, M.D.**	Director	March 24, 2022
/s/ Valerie Harding-Start **Valerie Harding-Start, Ph.D.**	Director	March 24, 2022
/s/ Pratik S. Multani **Pratik S. Multani, M.D.**	Director	March 24, 2022
/s/ Michael D. Varney **Michael D. Varney, Ph.D.**	Director and Chair of Research and Development	March 24, 2022

Exhibit 4.3

DESCRIPTION OF THE REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

As of December 31, 2021, Erasca, Inc. ("we," "us" and "our") had one class of securities registered pursuant to Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"): our common stock.

Description of Common Stock

General

The following description summarizes some of the terms of our common stock. Because it is only a summary, it does not contain all the information that may be important to you and is subject to and qualified in its entirety by reference to our amended and restated certificate of incorporation and amended and restated bylaws, copies of which are filed as exhibits to our most recent Annual Report on Form 10-K and are incorporated by reference herein. We encourage you to read our amended and restated certificate of incorporation and our amended and restated bylaws for additional information.

As of December 31, 2021, our authorized capital stock consisted of 800,000,000 shares of common stock, $0.0001 par value per share, and 80,000,000 shares of preferred stock, $0.0001 par value per share.

Voting Rights

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders, including the election of directors, and do not have cumulative voting rights. Accordingly, the holders of a majority of the outstanding shares of common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they so choose, other than any directors that holders of any preferred stock we may issue may be entitled to elect. Subject to the supermajority votes for some matters, other matters shall be decided by the affirmative vote of our stockholders having a majority in voting power of the votes cast by the stockholders present or represented and voting on such matter. Our amended and restated certificate of incorporation and amended and restated bylaws also provide that our directors may be removed only for cause and only by the affirmative vote of the holders of at least two-thirds in voting power of the outstanding shares of capital stock entitled to vote thereon. In addition, the affirmative vote of the holders of at least two-thirds in voting power of the outstanding shares of capital stock entitled to vote thereon is required to amend or repeal, or to adopt any provision inconsistent with, several of the provisions of our amended and restated certificate of incorporation.

Dividend Rights

Subject to preferences that may be applicable to any then outstanding preferred stock, holders of common stock are entitled to receive ratably those dividends, if any, as may be declared by the board of directors out of legally available funds.

Liquidation Rights

In the event of our liquidation, dissolution or winding up, the holders of common stock will be entitled to share ratably in the assets legally available for distribution to stockholders after the payment of or provision for all of our debts and other liabilities, subject to the prior rights of any preferred stock then outstanding.

Rights and Preferences
Holders of common stock have no preemptive or conversion rights or other subscription rights and there are no redemption or sinking funds provisions applicable to the common stock.

Fully Paid and Nonassessable

The outstanding shares of common stock are duly authorized, validly issued, fully paid and nonassessable.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A.

The Nasdaq Global Select Market Listing

Our common stock is listed and traded on the Nasdaq Global Select Market under the symbol “ICVX.”

Anti-Takeover Effects of Delaware Law and Our Certificate of Incorporation and Bylaws

Some provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws contain provisions that could make the following transactions more difficult: an acquisition of us by means of a tender offer; an acquisition of us by means of a proxy contest or otherwise; or the removal of our incumbent officers and directors. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in our best interests, including transactions which provide for payment of a premium over the market price for our shares.

These provisions, summarized below, are intended to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of the increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Undesignated Preferred Stock

The ability of our board of directors, without action by the stockholders, to issue up to 50,000,000 shares of undesignated preferred stock with voting or other rights or preferences as designated by our board of directors could impede the success of any attempt to change control of us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of our company.

Stockholder Meetings

Our amended and restated bylaws provide that a special meeting of stockholders may be called only by our chairman of the board of directors, chief executive officer or president, or by a resolution adopted by a majority of our board of directors.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Our amended and restated bylaws establish advance notice procedures with respect to stockholder proposals to be brought before a stockholder meeting and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors.

Elimination of Stockholder Action by Written Consent

Our amended and restated certificate of incorporation and amended and restated bylaws eliminate the right of stockholders to act by written consent without a meeting.

Staggered Board of Directors

Our board of directors is divided into three classes. The directors in each class will serve for a three-year term, with one class being elected each year by our stockholders. This system of electing directors may tend to discourage a third party from attempting to obtain control of us, because it generally makes it more difficult for stockholders to replace a majority of the directors.

Removal of Directors

Our amended and restated certificate of incorporation provides that no member of our board of directors may be removed from office except for cause and, in addition to any other vote required by law, upon the approval of not less than two thirds of the total voting power of all of our outstanding voting stock then entitled to vote in the election of directors.

Stockholders Not Entitled to Cumulative Voting

Our amended and restated certificate of incorporation does not permit stockholders to cumulate their votes in the election of directors. Accordingly, the holders of a majority of the outstanding shares of our common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they choose, other than any directors that holders of our preferred stock may be entitled to elect.

Delaware Anti-Takeover Statute

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits persons deemed to be “interested stockholders” from engaging in a “business combination” with a publicly held Delaware corporation for three years following the date these persons become interested stockholders unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. Generally, an “interested stockholder” is a person who, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation’s voting stock. Generally, a “business combination” includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by the board of directors.

Choice of Forum

Our amended and restated certificate of incorporation provides that, unless we consent in writing to the selection of an alternative form, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (i) any derivative action or proceeding brought on our behalf; (ii) any action asserting a claim of

breach of a fiduciary duty or other wrongdoing by any of our directors, officers, employees or agents to us or our stockholders, creditors or other constituents; (iii) any action asserting a claim against us arising pursuant to any provision of the General Corporation Law of the State of Delaware or our amended and restated certificate of incorporation or amended and restated bylaws; (iv) any action to interpret, apply, enforce or determine the validity of our certificate of incorporation or bylaws; or (v) any action asserting a claim governed by the internal affairs doctrine. The provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, our amended and restated certificate of incorporation will also provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause or causes of action arising under the Securities Act of 1933, as amended, including all causes of action asserted against any defendant to such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering. In any case, stockholders will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable.

Our amended and restated certificate of incorporation also provides that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock will be deemed to have notice of and to have consented to this choice of forum provision.

Amendment of Charter Provisions

The amendment of any of the above provisions, except for the provision making it possible for our board of directors to issue preferred stock, would require approval by holders of at least two thirds of the total voting power of all of our outstanding voting stock.

The provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in the composition of our board of directors and management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Exhibit 10.13

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

LEASE

by and between

BMR-ROAD TO THE CURE LP,
a Delaware limited partnership and

ERASCA, INC.,
a Delaware corporation

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LEASE

THIS LEASE (this "Lease") is entered into as of this 27th day of July, 2018 (the "Execution Date"), by and between BMR-ROAD TO THE CURE LP, a Delaware limited partnership ("Landlord"), and ERASCA, INC., a Delaware corporation ("Tenant").

RECITALS

A. WHEREAS, Landlord owns certain real property (the "Property") and the improvements on the Property located at 10835 Road to the Cure, San Diego, California 92121, including the building located thereon; and

B. WHEREAS, Landlord wishes to lease to Tenant, and Tenant desires to lease from Landlord, certain premises (the "Premises") known as Suite 140 and located on the first (1st) floor of the building in which the Premises are located (the "Building"), pursuant to the terms and conditions of this Lease, as detailed below.

AGREEMENT

NOW, THEREFORE, Landlord and Tenant, in consideration of the mutual promises contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound, agree as follows:

I. Lease of Premises.

I.I. Effective on the Term Commencement Date (as defined below), Landlord hereby leases to Tenant, and Tenant hereby leases from Landlord, the Premises, as shown on Exhibit A attached hereto, for use by Tenant in accordance with the Permitted Use (as defined below) and no other uses. The Property and all landscaping, parking facilities, private drives and other improvements and appurtenances related thereto, including the Building, are hereinafter collectively referred to as the "Project." All portions of the Project that are for the non-exclusive use of tenants of the Building, including driveways, sidewalks, parking areas, landscaped areas, service corridors, stairways, elevators, public restrooms and public lobbies, are hereinafter referred to as "Common Area."

2. Basic Lease Provisions. For convenience of the parties, certain basic provisions of this Lease are set forth herein. The provisions set forth herein are subject to the remaining terms and conditions of this Lease and are to be interpreted in light of such remaining terms and conditions.

2.1. This Lease shall take effect upon the Execution Date and, except as specifically otherwise provided within this Lease, each of the provisions hereof shall be binding upon and inure to the benefit of Landlord and Tenant from the date of execution and delivery hereof by all parties hereto.

2.2. In the definitions below, each current Rentable Area (as defined below) is expressed in square feet. Rentable Area and "Tenant's Pro Rata Share" are both subject to adjustment as provided in this Lease.

Definition or Provision	Means the Following (As of the Term Commencement Date}
Approximate Rentable Area of Premises	11,173 square feet
Approximate Rentable Area of Project	67,998 square feet
Tenant's Pro Rata Share of Project	16.43%

2.3. Initial monthly and annual installments of Base Rent for the Premises ("Base Rent") as of the Rent Commencement Date (as defined below), subject to adjustment under this Lease (including any Base Rent Abatement subject to and in accordance with Section 7.5 and the annual Base Rent adjustments provided in Article 8 of the Lease):

Dates	Square Feet Of Rentable Area	Base Rent er Square Foot of Rentable Area	Monthly Base Rent	Annual Base Rent
Months 1 - 12	11,173	$ 4.15 monthly	$ 46,367.95	$ 556,415.40

2.4. Term Commencement Date: The date that is one (I) business day after the Execution Date.

2.5. Term Expiration Date: May 31, 2024.

2.6. Securityc Deposit: $46,367.95.

2.7. Permitted Use: Office and laboratory use in conformity with all federal, state, municipal and local laws, codes, ordinances, rules and regulations of Governmental Authorities (as defined below), committees, associations, or other regulatory committees, agencies or governing bodies having jurisdiction over the Premises, the Building, the Property, the Project, Landlord or Tenant, including both statutory and common law and hazardous waste rules and regulations ("Applicable Laws").

2.8. Address for Rent Payment:

BMR-Road to the Cure LP
Attention Entity 630
P.O. Box 511415
Los Angeles, California 90051-7970

2.9. Address for Notices to Landlord:

BMR-Road to the Cure LP
17190 Bernardo Center Drive
San Diego, California 92128
Attn: Legal Department

2.10. Address for Notices to Tenant:

Erasca, Inc.
I 0835 Road to the Cure, Suite 140
San Diego, California 92121

2.11. Address for Invoices to Tenant:

Erasca, Inc.
10835 Road to the Cure, Suite 140
San Diego, California 92121

2.12. The following Exhibits are attached hereto and incorporated herein by reference:

Exhibit A	Premises
Exhibit B	Work Letter
Exhibit B-1	Tenant Work Insurance Schedule Acknowledgement
Exhibit C	of Term Commencement Date[Intentionally Omitted]
Exhibit D	Form of Letter of Credit Rules
Exhibit E	and Regulations [Intentionally
Exhibit F	Omitted] Tenant’s Personal
Exhibit G	Property Form of Estoppel
Exhibit H	CertificateRight of First
Exhibit I	Refusal Space
Exhibit J	

3. Term. The actual term of this Lease (as the same may be extended pursuant to Article 42 hereof, and as the same may be earlier terminated in accordance with this Lease, the "Term") shall commence on the Tern Commencement Date (as defined in Article 4) and end on the date set forth in Section 2.5 above (the "Term Expiration Date"), subject to extension or earlier termination of this Lease as provided herein. TENANT HEREBY WAIVES THE REQUIREMENTS OF SECTION 1933 OF THE CALIFORNIA CIVIL CODE, AS THE SAME MAY BE AMENDED FROM TIME TO TIME.

4. Possession and Commencement Date.

4.1. The "Term Commencement Date" shall be the date set forth in Section 2.4 above. Tenant shall execute and deliver to Landlord written acknowledgment of the actual Term Commencement Date within ten (I 0) days after the Execution Date, in the form attached as Exhibit C hereto. Failure to execute and deliver such acknowledgment, however, shall not affect the Term Commencement Date or Landlord's or Tenant's liability hereunder. Failure by Tenant to obtain validation by any medical review board or other similar governmental licensing of the Premises required for the Permitted Use by Tenant shall not serve to extend the Term Commencement Date.

4.2. Tenant shall cause the Tenant Improvements to be constructed in the Premises pursuant to the Work Letter attached hereto as Exhibit B (the "Work Letter") at a cost to Landlord not to exceed Three Hundred Ninety-One Thousand Fifty-Five Dollars ($391,055) (based upon Thirty-Five Dollars ($35) per square foot of Rentable Area (as defined below)) (the "TI Allowance"). The TI Allowance may be applied to the costs of (m) construction, (n) project review by Landlord (which fee shall equal one percent (1%) of the cost of the Tenant Improvements, including the TI Allowance), (o) commissioning of mechanical, electrical and plumbing systems by a licensed, qualified commissioning agent hired by Tenant, and review of such party's commissioning report by a licensed, qualified commissioning agent hired by Landlord, (p) space planning, architect, engineering and other related services performed by third parties unaffiliated with Tenant, (q) building permits and other taxes, fees, charges and levies by Governmental Authorities (as defined below) for permits or for inspections of the Tenant Improvements, and (r) costs and expenses for labor, material, furniture, equipment and fixtures; provided, however, that no more than ten percent (10%) of the TI Allowance may be applied in the aggregate to (i) furniture, equipment and fixtures at the Premises and (ii) Tenant's expenses in connection with moving into the Premises. In no event shall the TI Allowance be used for (v) the cost of work that is not authorized by the Approved Plans (as defined in the Work Letter) or otherwise approved in writing by Landlord, (w) payments to Tenant or any affiliates of Tenant, (x) except as specifically permitted in Section 4.2(r), the purchase of any furniture, personal property or other non-building system equipment, (y) costs arising from any default by Tenant of its obligations under this Lease or (z) costs that are recoverable by Tenant from a third party (e.g., insurers, warrantors, or tortfeasors).

4.3. Tenant shall have until November 30, 2019 (the "TI Deadline"), to submit Fund Requests (as defined in the Work Letter) to Landlord for disbursement of the unused portion of the TI Allowance, after which date Landlord's obligation to fund any such costs for which Tenant has not submitted a Fund Request to Landlord shall expire.

4.4. In no event shall any unused TI Allowance entitle Tenant to a credit against Rent payable under this Lease. Tenant shall deliver to Landlord (a) a certificate of occupancy (or its substantial equivalent) for the Premises suitable for the Permitted Use and (b) a Certificate of Substantial Completion in the form of the American Institute of Architects document 0704, executed by the project architect and the general contractor.

4.5. Prior to entering upon the Premises, Tenant shall furnish to Landlord evidence satisfactory to Landlord that insurance coverages required of Tenant under the provisions of Article 23 are in effect, and such entry shall be subject to all the terms and conditions of this Lease (other than the payment of Base Rent or Tenant's Adjusted Share of Operating Expenses (as defined below) until the Rent Commencement Date (provided that, notwithstanding anything to the contrary in this Lease, Tenant shall be solely responsible and pay for all utilities used in the Premises commencing on the Term Commencement Date pursuant to Section 16.1)).

4.6. Landlord and Tenant shall mutually agree upon the selection of the architect, engineer, general contractor and major subcontractors, and Landlord and Tenant shall each participate in the review of the competitive bid process. Landlord may refuse to approve any architects, consultants, contractors, subcontractors or material suppliers that Landlord reasonably believes could cause labor disharmony or may not have sufficient experience, in Landlord's reasonable opinion, to perform work in an occupied Class "A" laboratory research building and in tenant-occupied lab areas.

4.7. In addition to the TI Allowance and subject to the terms of this Section, Landlord shall provide Tenant with an allowance of an amount not to exceed Forty-Five Thousand Dollars ($45,000) ("Furniture Allowance").

(a) The Furniture Allowance may be applied toward the cost of (i) furniture systems to be placed in the open office area of the Premises (the "Furniture Systems") and (ii) that portion of the Tenant Improvements (that otherwise would qualify for use of the TI Allowance) in connection with the purchase and installation of the distribution infrastructure for the electrical and data service to the Furniture Systems (the "Furniture Infrastructure," and together with the Furniture Systems, the "Furniture Improvements") (for the avoidance of doubt, the Furniture Infrastructure is part of the Tenant Improvements and therefore subject to all provisions of this Lease and the Work Letter applicable to Tenant Improvements). Prior to the Rent Commencement Date, Tenant shall purchase and install at least twenty (20) units of the Furniture Systems; provided that, the Furniture Systems shall be subject to Landlord's prior written approval. Tenant shall have until the Rent Commencement Date (the "FA Deadline"), to submit FA Fund Requests (as defined below) to Landlord for disbursement of the unused portion of the Furniture Allowance, after which date Landlord's obligation to fund any such costs for which Tenant has not submitted a FA Fund Request to Landlord shall expire.

(b) Upon submission by Tenant to Landlord as of or prior to the FA Deadline of (a) a statement (a "FA Fund Request") setting forth the total amount of the Furniture Allowance requested, (b) a summary of the Furniture Improvements purchased or performed using AJA standard form Application for Payment (G 702) executed by the general contractor and by the architect, (c) invoices from the general contractor, the architect, and any subcontractors, material suppliers and other parties requesting payment with respect to the amount of the Furniture Allowance then being requested, (d) unconditional lien releases from the general contractor and each subcontractor and material supplier with respect to previous payments made by either Landlord or Tenant for the Furniture Improvements in a form acceptable to Landlord and complying with Applicable Laws and (e) conditional lien releases from the general contractor and each subcontractor and material supplier with respect to the Furniture Improvements purchased or performed that correspond to the FA Fund Request each in a form acceptable to Landlord and complying with Applicable Laws, then Landlord shall, within thirty (30) days following receipt by Landlord of a FA Fund Request and the accompanying materials required by

this Section, pay to (as elected by Landlord) the applicable contractors, subcontractors and material suppliers or Tenant (for reimbursement for payments made by Tenant to such contractors, subcontractors or material suppliers either prior to Landlord's approval of the Approved TI Budget or as a result of Tenant's decision to pay for the Furniture Improvements itself and later seek reimbursement from Landlord in the form of one lump sum payment in accordance with the Lease), the amount of Furniture Improvement costs set forth in such FA Fund Request; provided, however, that Landlord shall not be obligated to make any payments under this Section until the budget for the Tenant Improvements is approved in accordance with Section 6.2 of the Work Letter, and any FA Fund Request under this Section shall be submitted as of or prior to the FA Deadline and shall be subject to the payment limits set forth in this Section 4.7. Notwithstanding anything in this Section to the contrary, Tenant shall not submit a FA Fund Request after the FA Deadline or more often than every thirty (30) days. Any additional FA Fund Requests submitted by Tenant after the FA Deadline or more often than every thirty (30) days shall be void and of no force or effect. In no event shall any unused Furniture Allowance entitle Tenant to a credit against Rent payable under this Lease.

(c) Tenant hereby agrees that Tenant shall maintain and repair all such Furniture Systems in as good a condition as received by Tenant (subject to normal wear and tear) throughout the Term, at Tenant's sole cost and expense. In the event of irreparable damage (excluding normal wear and tear) to any item of the Furniture Systems, then Tenant shall promptly replace such damaged item, at Tenant's sole cost and expense (and in all events, prior to the expiration or earlier termination of the Term). Landlord shall have the right, at any time during the Term, to inspect the Furniture Systems to ensure Tenant's compliance with the terms of this Section. In the event Tenant fails to maintain, repair or replace the Furniture Systems in accordance with this Section, Landlord shall have the right to maintain, repair or replace such Furniture Systems, at Tenant's sole cost and expense, and Tenant shall reimburse Landlord for the cost of such maintenance, repair and/or replacement within ten (10) days following Landlord's request therefor. With respect to the insurance which Tenant is obligated to maintain on its personal property during the Term pursuant to the terms of this Lease, Tenant shall cause such insurance to also cover the Furniture Systems. Tenant shall not (i) remove any of the Furniture Systems from the Premises, (ii) assign the Furniture Systems as collateral or otherwise, (iii) sell any of the Furniture Systems, or (iv) give any third party a security interest or any other interest in such Furniture Systems. Landlord's rights and Tenant's obligations under this Section shall survive the expiration or termination of this Lease.

5. Condition of Premises. Tenant acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the condition of the Premises, the Building or the Project, or with respect to the suitability of the Premises, the Building or the Project for the conduct of Tenant's business. Tenant acknowledges that (a) it is fully familiar with the condition of the Premises and agrees to take the same in its condition "as is" as of the Execution Date, and (b) Landlord shall have no obligation to alter, repair or otherwise prepare the Premises for Tenant's occupancy or to pay for or construct any improvements to the Premises, except with respect to payment of the TI Allowance and the Furniture Allowance. Notwithstanding the foregoing, Landlord shall deliver possession of the Premises to Tenant (m) in broom clean condition and (n) with the existing base building heating, ventilating and air conditioning system and the existing base building electrical, lighting and plumbing systems, in each case serving the Premises (collectively, the "Existing Building Systems") in good working order ("Landlord's Delivery Obligation"). Tenant's taking of possession of the Premises shall, except as otherwise agreed to in writing by Landlord and Tenant, conclusively establish that the Premises, the Building and the Project were at such time in good, sanitary and satisfactory condition and repair and that Landlord's Delivery Obligation was satisfied; provided that, if Landlord fails to satisfy Landlord's Delivery Obligation (a "Delivery Shortfall"), then Tenant may,

as its sole and exclusive remedy, deliver notice of such failure to Landlord detailing the nature of such failure (a "Shortfall Notice"); provided, further, that any Shortfall Notice must be received by Landlord no later than the date (the "Shortfall Notice Deadline") that is ninety (90) days after the Execution Date. In the event that Landlord receives a Shortfall Notice on or before the Shortfall Notice Deadline, and provided that, (r) the Delivery Shortfall was not caused by (or did not arise from) (i) the misuse, misconduct, damage, destruction, negligence and/or any other action or omission of Tenant, Tenant's contractors or subcontractors, or any of their respective employees, agents or invitees, (ii) Tenant's failure to properly repair or maintain the Premises as required by this Lease, (iii) any modifications, Alterations or improvements constructed by or on behalf of Tenant (including the Tenant Improvements) or (iv) any other event, circumstance or other factor arising or occurring after the Term Commencement Date and (s) Landlord agrees that the Delivery Shortfall referenced in such Shortfall Notice exists, then Landlord shall, at Landlord's expense (and not as an Operating Expense), promptly remedy the Delivery Shortfall. Notwithstanding anything to the contrary in this Lease, Landlord shall not have any obligations or liabilities in connection with (y) a Delivery Shortfall except to the extent such Delivery Shortfall is identified by Tenant in a Shortfall Notice delivered to Landlord on or before the Shortfall Notice Deadline and such Delivery Shortfall gives rise to an obligation of Landlord to remedy such Delivery Shortfall under the immediately preceding sentence and/or (z) any failure of the Existing Building Systems to be in good working order arising from or in connection with (i) the misuse, misconduct, damage, destruction, negligence and/or any other action or omission of Tenant, Tenant's contractors or subcontractors, or any of their respective employees, agents or invitees, (ii) Tenant's failure to properly repair or maintain the Premises as required by this Lease, (iii) any modifications, Alterations or improvements constructed by or on behalf of Tenant (including the Tenant Improvements) or (iv) any other event, circumstance or other factor arising or occurring after the Term Commencement Date, and in any such case, no Delivery Shortfall shall be deemed to have occurred as a result thereof.

6. Rentable Area.

6.1. The term "Rentable Area" shall reflect such areas as reasonably calculated by Landlord's architect, as the same may be reasonably adjusted from time to time by Landlord in consultation with Landlord's architect to reflect changes to the Premises, the Building or the Project, as applicable.

6.2. The Rentable Area of the Building is generally determined by making separate calculations of Rentable Area applicable to each floor within the Building and totaling the Rentable Area of all floors within the Building. The Rentable Area of a floor is computed by measuring to the outside finished surface of the permanent outer Building walls. The full area calculated as previously set forth is included as Rentable Area, without deduction for columns and projections or vertical penetrations, including stairs, elevator shafts, flues, pipe shafts, vertical ducts and the like, as well as such items' enclosing walls.

6.3. The term "Rentable Area," when applied to the Premises, is that area equal to the usable area of the Premises, plus an equitable allocation of Rentable Area within the Building that is not then utilized or expected to be utilized as usable area, including that portion of the Building devoted to corridors, equipment rooms, restrooms, elevator lobby, atrium and mailroom.

7. Rent.

7.1. Tenant shall pay to Landlord as Base Rent for the Premises, commencing on December I, 2018 (the "Rent Commencement Date"), the sums set forth in Section 2.3, subject to the rental adjustments provided in Article 8 hereof. Base Rent shall be paid in equal monthly installments as set forth in Section 2.3, subject to the rental adjustments provided in Article 8 hereof, each in advance on the first day of each and every calendar month during the Term.

7.2. In addition to Base Rent, Tenant shall pay to Landlord as additional rent ("Additional Rent") at times hereinafter specified in this Lease (a) Tenant's Adjusted Share (as defined below) of Operating Expenses (as defined below), (b) the Property Management Fee (as defined below) and (c) any other amounts that Tenant assumes or agrees to pay under the provisions of this Lease that are owed to Landlord, including any and all other sums that may become due by reason of any default of Tenant or failure on Tenant's part to comply with the agreements, terms, covenants and conditions of this Lease to be performed by Tenant, after notice and the lapse of any applicable cure periods.

7.3. Base Rent and Additional Rent shall together be denominated "Rent." Rent shall be paid to Landlord, without abatement, deduction or offset, in lawful money of the United States of America to the address set forth in Section 2.8 or to such other person or at such other place as Landlord may from time designate in writing. In the event the Term commences or ends on a day other than the first day of a calendar month, then the Rent for such fraction of a month shall be prorated for such period on the basis of the number of days in the month and shall be paid at the then-current rate for such fractional month.

7.4. Tenant's obligation to pay Rent shall not be discharged or otherwise affected by (a) any Applicable Laws now or hereafter applicable to the Premises, (b) any other restriction on Tenant's use, (c) except as expressly provided herein, any casualty or taking or (d) any other occurrence; and Tenant waives all rights now or hereafter existing to terminate or cancel this Lease or quit or surrender the Premises or any part thereof, or to assert any defense in the nature of constructive eviction to any action seeking to recover rent. Tenant's obligation to pay Rent with respect to any period or obligations arising, existing or pertaining to the period prior to the date of the expiration or earlier termination of the Term or this Lease shall survive any such expiration or earlier termination; provided, however, that nothing in this sentence shall in any way affect Tenant's obligations with respect to any other period.

7.5. Provided that Tenant is not then in default of this Lease (beyond the expiration of all applicable notice and cure periods expressly set forth in this Lease), then during the initial six (6) calendar months of the Term following the Rent Commencement Date (the "Rent Abatement Period"), Tenant shall not be obligated to pay any Base Rent otherwise attributable to the Premises (the "Rent Abatement"). Landlord and Tenant acknowledge that the aggregate amount of the Rent Abatement shall be in an amount not to exceed Two Hundred Seventy-Eight Thousand Two Hundred Seven and 70/100 Dollars ($278,207.70). Tenant acknowledges and agrees that the foregoing Rent Abatement has been granted to Tenant as additional consideration for entering into this Lease, and for agreeing to pay the rental and performing the terms and conditions otherwise required under this Lease. If Tenant shall be in default under this Lease beyond any applicable notice and cure period provided in this Lease, then Tenant's right to receive the Base Rent Abatement for the Base Rent Abatement Period shall automatically terminate as of the date of such default and Tenant shall immediately be obligated to begin paying Base Rent for the Premises in full. The Base Rent Abatement shall be personal to the original Tenant and shall only apply to the extent that the original Tenant (and not any assignee, or any sublessee or other transferee of the original

Tenant's interest in this Lease) is the Tenant under this Lease during the Base Rent Abatement Period. Nothing in this Section shall work to abate or reduce (during the Rent Abatement Period or otherwise) Tenant's obligations under this Lease with respect to Additional Rent including (without limitation) Tenant's obligations with respect to Tenant's Adjusted Share of Operating Expenses and the Property Management Fee.

8. Rent Adjustments. Base Rent shall be subject to an annual upward adjustment of three percent (3%) of the then-current Base Rent. The first such adjustment shall become effective commencing on the first (1st) annual anniversary of the Rent Commencement Date, and subsequent adjustments shall become effective on every successive annual anniversary for so long as this Lease continues in effect.

9. Operating Expenses.

9.1. As used herein, the term "Operating Expenses" shall include:

(a) Government impositions, including property tax costs consisting of real and personal property taxes (including amounts due under any improvement bond upon the Building or the Project (including the parcel or parcels of real property upon which the Building and areas serving the Building and the Project are located)) or assessments in lieu thereof imposed by any federal, state, regional, local or municipal governmental authority, agency or subdivision (each, a "Governmental Authority"); taxes on or measured by gross rentals received from the rental of space in the Project; taxes based on the square footage of the Premises, the Building or the Project, as well as any parking charges, utilities surcharges or any other costs levied, assessed or imposed by, or at the direction of, or arising from Applicable Laws or interpretations thereof, promulgated by any Governmental Authority in connection with the use or occupancy of the Project or the parking facilities serving the Project; taxes on this transaction or any document to which Tenant is a party creating or transferring an interest in the Premises; any fee for a business license to operate an office building; and any expenses, including the reasonable cost of attorneys or experts, reasonably incurred by Landlord in seeking reduction by the taxing authority of the applicable taxes, less tax refunds obtained as a result of an application for review thereof; and

(b) All other costs of any kind paid or incurred by Landlord in connection with the operation or maintenance of the Building and the Project, which shall include Project office rent at fair market rental for a commercially reasonable amount of space for Project management personnel, to the extent an office used for Project operations is maintained at the Project, plus customary expenses for such office, and costs of repairs and replacements to improvements within the Project as appropriate to maintain the Project as required hereunder, including costs of funding such reasonable reserves as Landlord, consistent with good business practice, may establish to provide for future repairs and replacements, or as any Lender (as defined below) may require; costs of utilities furnished to the Common Area; sewer fees; cable television; trash collection; cleaning, including windows; heating, ventilation and air-conditioning ("HVAC"); maintenance of landscaping and grounds; snow removal; maintenance of drives and parking areas; maintenance of the roof; security services and devices; building supplies; maintenance or replacement of equipment utilized for operation and maintenance of the Project; license, permit and inspection fees; sales, use and excise taxes on goods and services purchased by Landlord in connection with the operation, maintenance or repair of the Building or Project systems and equipment; telephone, postage, stationery supplies and other expenses incurred in connection with the operation, maintenance or repair of the Project; accounting, legal and other professional fees and expenses incurred in connection with the Project; costs of furniture, draperies,

carpeting, landscaping supplies, snow removal and other customary and ordinary items of personal property provided by Landlord for use in Common Area or in the Project office; Project office rent or rental value for a commercially reasonable amount of space, to the extent an office used for Project operations is maintained at the Project, plus customary expenses for such office; capital expenditures; costs of complying with Applicable Laws (except to the extent such costs are incurred to remedy non-compliance as of the Execution Date with Applicable Laws); costs to keep the Project in compliance with, or costs or fees otherwise required under or incurred pursuant to any CC&Rs (as defined below), including condominium fees; insurance premiums, including premiums for commercial general liability, property casualty, earthquake, terrorism and environmental coverages; portions of insured losses paid by Landlord as part of the deductible portion of a loss pursuant to the terms of insurance policies; service contracts; costs of services of independent contractors retained to do work of a nature referenced above; and costs of compensation (including employment taxes and fringe benefits) of all persons who perform regular and recurring duties connected with the day-to-day operation and maintenance of the Project, its equipment, the adjacent walks, landscaped areas, drives and parking areas, including janitors, floor waxers, window washers, watchmen, gardeners, sweepers, plow truck drivers, handymen, and engineering/maintenance/facilities personnel.

(c) Notwithstanding the foregoing, Operating Expenses shall not include any net income, franchise, capital stock, estate or inheritance taxes, or taxes that are the personal obligation of Tenant or of another tenant of the Project; any leasing commissions; expenses that relate to preparation of rental space for a tenant; expenses of initial development and construction, including grading, paving, landscaping and decorating (as distinguished from maintenance, repair and replacement of the foregoing); legal expenses relating to other tenants; costs of repairs to the extent reimbursed by payment of insurance proceeds received by Landlord; interest upon loans to Landlord or secured by a loan agreement, mortgage, deed of trust, security instrument or other loan document covering the Project or a portion thereof (collectively, "Loan Documents") (provided that interest upon a government assessment or improvement bond payable in installments shall constitute an Operating Expense under Subsection 9.1(a)); salaries of executive officers of Landlord; depreciation claimed by Landlord for tax purposes (provided that this exclusion of depreciation is not intended to delete from Operating Expenses actual costs of repairs and replacements and reasonable reserves in regard thereto that are provided for in Subsection 9.1(b)); taxes that are excluded from Operating Expenses by the last sentence of Subsection 9.1(a); costs or expenses incurred in connection with the financing or sale of the Project or any portion thereof; costs expressly excluded from Operating Expenses elsewhere in this Lease or that are charged to or paid by Tenant under other provisions of this Lease; professional fees and disbursements and other costs and expenses related to the ownership (as opposed to the use, occupancy, operation, maintenance or repair) of the Project; charitable contributions; costs of purchasing art; fines, penalties and interest incurred as a result of Landlord's failure to pay any taxes when due (but only to the extent such fines, penalties and interest do not relate to any taxes that Tenant failed to pay Landlord (or any other party) when due); and any item that, if included in Operating Expenses, would involve a double collection for such item by Landlord. To the extent that Tenant uses more than Tenant's Pro Rata Share of any item of Operating Expenses, Tenant shall pay Landlord for such excess in addition to Tenant's obligation to pay Tenant's Pro Rata Share of Operating Expenses (such excess, together with Tenant's Pro Rata Share, "Tenant's Adjusted Share").

9.2. Commencing on the Rent Commencement Date, Tenant shall pay to Landlord on the first day of each calendar month of the Term, as Additional Rent, (a) the Property Management Fee (as defined below) and (b) Landlord's estimate of Tenant's Adjusted Share of Operating Expenses with respect to the Building and the Project, as applicable, for such month.

(x) The "Property Management Fee" shall equal three percent (3%) of Base Rent due from Tenant. Tenant shall pay the Property Management Fee in accordance with Section 9.2 with respect to the entire Term, including any extensions thereof or any holdover periods, regardless of whether Tenant is obligated to pay Base Rent, Operating Expenses or any other Rent with respect to any such period or portion thereof. During the Rent Abatement Period), the Property Management Fee shall be calculated as if Tenant were paying Forty-Six Thousand Three Hundred Sixty-Seven and 95/100 Dollars ($46,367.95) per month for Base Rent.

(y) Within ninety (90) days after the conclusion of each calendar year (or such longer period as may be reasonably required by Landlord), Landlord shall furnish to Tenant a statement showing in reasonable detail the actual Operating Expenses, Tenant's Adjusted Share of Operating Expenses, and the cost of providing utilities to the Premises for the previous calendar year ("Landlord's Statement"). Any additional sum due from Tenant to Landlord shall be due and payable within thirty (30) days after receipt of an invoice therefor. If the amounts paid by Tenant pursuant to this Section exceed Tenant's Adjusted Share of Operating Expenses for the previous calendar year, then Landlord shall credit the difference against the Rent next due and owing from Tenant; provided that, if the Lease Term has expired, Landlord shall accompany Landlord's Statement with payment for the amount of such difference.

(z) Any amount due under this Section for any period that is less than a full month shall be prorated for such fractional month on the basis of the number of days in the month.

9.3. Landlord may, from time to time, modify Landlord's calculation and allocation procedures for Operating Expenses, so long as such modifications produce Dollar results substantially consistent with Landlord's then-current practice at the Project. Landlord or an affiliate(s) of Landlord currently own other property(ies) adjacent to the Project or its neighboring properties (collectively, "Neighboring Properties"). In connection with Landlord performing services for the Project pursuant to this Lease, similar services may be performed by the same vendor(s) for Neighboring Properties. In such a case, Landlord shall reasonably allocate to each Building and the Project the costs for such services based upon the ratio that the square footage of the Building or the Project (as applicable) bears to the total square footage of all of the Neighboring Properties or buildings within the Neighboring Properties for which the services are performed, unless the scope of the services performed for any building or property (including the Building and the Project) is disproportionately more or less than for others, in which case Landlord shall equitably allocate the costs based on the scope of the services being performed for each building or property (including the Building and the Project).

9.4. [Intentionally Omitted.]

9.5. Tenant shall not be responsible for Operating Expenses with respect to any time period prior to the Rent Commencement Date; provided, however, that Landlord may annualize certain Operating Expenses incurred prior to the Rent Commencement Date over the course of the budgeted year during which the Rent Commencement Date occurs, and Tenant shall be responsible for the annualized portion of such Operating Expenses corresponding to the number of days during such year, commencing with the Rent Commencement Date, for which Tenant is otherwise liable for Operating Expenses pursuant to this Lease. Tenant's responsibility for Tenant's Adjusted Share of Operating Expenses shall continue to the latest of (a) the date of termination of the Lease, (b) the date Tenant has fully vacated the Premises and (c) if termination of the Lease is due to a default by Tenant, the date of rental commencement of a replacement tenant.

9.6. Operating Expenses for the calendar year in which Tenant's obligation to share therein commences and for the calendar year in which such obligation ceases shall be prorated on a basis reasonably determined by Landlord. Expenses such as taxes, assessments and insurance premiums that are incurred for an extended time period shall be prorated based upon the time periods to which they apply so that the amounts attributed to the Premises relate in a reasonable manner to the time period wherein Tenant has an obligation to share in Operating Expenses.

9.7. Within thirty (30) days after the end of each calendar month, Tenant shall submit to Landlord an invoice, or, in the event an invoice is not available, an itemized list, of all costs and expenses that (a) Tenant has incurred (either internally or by employing third parties) during the prior month and (b) for which Tenant reasonably believes it is entitled to reimbursements from Landlord pursuant to the terms of this Lease or that Tenant reasonably believes is the responsibility of Landlord pursuant to this Lease.

9.8. In the event that the Building or Project is less than fully occupied during a calendar year, Tenant acknowledges that Landlord may extrapolate Operating Expenses that vary depending on the occupancy of the Building or Project, as applicable, to equal Landlord's reasonable estimate of what such Operating Expenses would have been had the Building or Project, as applicable, been ninety-five percent (95%) occupied during such calendar year; provided, however, that Landlord shall not recover more than one hundred percent (100%) of Operating Expenses.

10. Taxes on Tenant's Property.

10.1. Tenant shall be solely responsible for the payment of any and all taxes levied upon (a) personal property and trade fixtures located at the Premises and (b) any gross or net receipts of or sales by Tenant, and shall pay the same prior to delinquency.

10.2. If any such taxes on Tenant's personal property or trade fixtures are levied against Landlord or Landlord's property or, if the assessed valuation of the Building, the Property or the Project is increased by inclusion therein of a value attributable to Tenant's personal property or trade fixtures, and if Landlord, after written notice to Tenant, pays the taxes based upon any such increase in the assessed value of the Building, the Property or the Project, then Tenant shall, upon demand, repay to Landlord the taxes so paid by Landlord.

10.3. If any improvements in or alterations to the Premises, whether owned by Landlord or Tenant and whether or not affixed to the real property so as to become a part thereof, are assessed for real property tax purposes at a valuation higher than the valuation at which improvements conforming to Landlord's building standards (the "Building Standard") in other spaces in the Building are assessed, then the real property taxes and assessments levied against Landlord or the Building, the Property or the Project by reason of such excess assessed valuation shall be deemed to be taxes levied against personal property of Tenant and shall be governed by the provisions of Section 10.2. Any such excess assessed valuation due to improvements in or alterations to space in the Project leased by other tenants at the Project shall not be included in Operating Expenses. If the records of the applicable governmental assessor's office are available and sufficiently detailed to serve as a basis for determining whether such Tenant improvements or alterations are assessed at a higher valuation than the Building Standard, then such records shall be binding on both Landlord and Tenant.

11. Security Deposit.

11.1. Tenant shall deposit with Landlord on or before the Execution Date the sum set forth in Section 2.6 (the "Security Deposit"), which sum shall be held by Landlord as security for the faithful performance by Tenant of all of the terms, covenants and conditions of this Lease to be kept and performed by Tenant during the period commencing on the Execution Date and ending upon the expiration or termination of Tenant's obligations under this Lease. If Tenant Defaults (as defined below) with respect to any provision of this Lease, including any provision relating to the payment of Rent, then Landlord may (but shall not be required to) use, apply or retain all or any part of the Security Deposit for the payment of any Rent or any other sum in default, or to compensate Landlord for any other loss or damage that Landlord may suffer by reason of Tenant's default. If any portion of the Security Deposit is so used or applied, then Tenant shall, within ten (10) days following demand therefor, deposit cash with Landlord in an amount sufficient to restore the Security Deposit to its original amount, and Tenant's failure to do so shall be a material breach of this Lease. The provisions of this Article shall survive the expiration or earlier termination of this Lease. TENANT HEREBY WAIVES THE REQUIREMENTS OF SECTION 1950.7 OF THE CALIFORNIA CIVIL CODE, AS THE SAME MAY BE AMENDED FROM TIME TO TIME.

11.2. In the event of bankruptcy or other debtor-creditor proceedings against Tenant, the Security Deposit shall be deemed to be applied first to the payment of Rent and other charges due Landlord for all periods prior to the filing of such proceedings.

11.3. Landlord may deliver to any purchaser of Landlord's interest in the Premises the funds deposited hereunder by Tenant, and thereupon Landlord shall be discharged from any further liability with respect to such deposit. This provision shall also apply to any subsequent transfers.

11.4. If Tenant shall fully and faithfully perform every provision of this Lease to be performed by it, then the Security Deposit, or any balance thereof, shall be returned to Tenant (or, at Landlord's option, to the last assignee of Tenant's interest hereunder) within thirty (30) days after the expiration or earlier termination of this Lease.

11.5. If the Security Deposit shall be in cash, Landlord shall hold the Security Deposit in an account at a banking organization selected by Landlord; provided, however, that Landlord shall not be required to maintain a separate account for the Security Deposit, but may intermingle it with other funds of Landlord. Landlord shall be entitled to all interest and/or dividends, if any, accruing on the Security Deposit. Landlord shall not be required to credit Tenant with any interest for any period during which Landlord does not receive interest on the Security Deposit.

11.6. The Security Deposit may be in the form of cash, a letter of credit or any other security instrument acceptable to Landlord in its sole discretion. Tenant may at any time, except when Tenant is in Default (as defined below), deliver a letter of credit (the "L/C Security") as the entire Security Deposit, as follows:

(a) If Tenant elects to deliver L/C Security, then Tenant shall provide Landlord, and maintain in full force and effect throughout the Term and until the date that is six (6) months after the then-current Term Expiration Date, a letter of credit in the form of Exhibit E issued by an issuer reasonably satisfactory to Landlord, in the amount of the Security Deposit, with an initial

term of at least one year. Landlord may require the L/C Security to be re-issued by a different issuer at any time during the Term if Landlord reasonably believes that the issuing bank of the L/C Security is or may soon become insolvent; provided, however, Landlord shall return the existing L/C Security to the existing issuer immediately upon receipt of the substitute L/C Security. If any issuer of the L/C Security shall become insolvent or placed into FDIC receivership, then Tenant shall immediately deliver to Landlord (without the requirement of notice from Landlord) substitute L/C Security issued by an issuer reasonably satisfactory to Landlord, and otherwise conforming to the requirements set forth in this Article. As used herein with respect to the issuer of the L/C Security, "insolvent" shall mean the determination of insolvency as made by such issuer's primary bank regulator *(i.e.*, the state bank supervisor for state chartered banks; the OCC or OTS, respectively, for federally chartered banks or thrifts; or the Federal Reserve for its member banks). If, at the Term Expiration Date, any Rent remains uncalculated or unpaid, then (i) Landlord shall with reasonable diligence complete any necessary calculations, (ii) Tenant shall extend the expiry date of such L/C Security from time to time as Landlord reasonably requires and (iii) in such extended period, Landlord shall not unreasonably refuse to consent to an appropriate reduction of the L/C Security. Tenant shall reimburse Landlord's legal costs (as estimated by Landlord's counsel) in handling Landlord's acceptance of L/C Security or its replacement or extension.

(b) If Tenant delivers to Landlord satisfactory L/C Security in place of the entire Security Deposit, Landlord shall remit to Tenant any cash Security Deposit Landlord previously held.

(c) Landlord may draw upon the L/C Security, and hold and apply the proceeds in the same manner and for the same purposes as the Security Deposit, if (i) an uncured Default (as defined below) exists, (ii) as of the date that is forty-five (45) days before any L/C Security expires (even if such scheduled expiry date is after the Term Expiration Date) Tenant has not delivered to Landlord an amendment or replacement for such L/C Security, reasonably satisfactory to Landlord, extending the expiry date to the earlier of (1) six (6) months after the then-current Term Expiration Date or (2) the date that is one year after the then-current expiry date of the L/C Security, (iii) the L/C Security provides for automatic renewals, Landlord asks the issuer to confirm the current L/C Security expiry date, and the issuer fails to do so within ten

(10) business days, (iv) Tenant fails to pay (when and as Landlord reasonably requires) any bank charges for Landlord's transfer of the L/C Security or (v) the issuer of the L/C Security ceases, or announces that it will cease, to maintain an office in the city where Landlord may present drafts under the L/C Security (and fails to permit drawing upon the L/C Security by overnight courier or facsimile). This Section does not limit any other provisions of this Lease allowing Landlord to draw the L/C Security under specified circumstances.

(d) Tenant shall not seek to enjoin, prevent, or otherwise interfere with Landlord's draw under L/C Security, even if it violates this Lease. Tenant acknowledges that the only effect of a wrongful draw would be to substitute a cash Security Deposit for L/C Security, causing Tenant no legally recognizable damage. Landlord shall hold the proceeds of any draw in the same manner and for the same purposes as a cash Security Deposit. In the event of a wrongful draw, the parties shall cooperate to allow Tenant to post replacement L/C Security simultaneously with the return to Tenant of the wrongfully drawn sums, and Landlord shall upon request confirm in writing to the issuer of the L/C Security that Landlord's draw was erroneous.

(e) If Landlord transfers its interest in the Premises, then Tenant shall at Tenant's expense, within five (5) business days after receiving a request from Landlord, deliver (and, if the issuer requires, Landlord shall consent to) an amendment to the L/C Security naming Landlord's grantee as substitute beneficiary. If the required Security Deposit changes while L/C Security is in force, then Tenant shall deliver (and, if the issuer requires, Landlord shall consent to) a corresponding amendment to the L/C Security.

12. Use.

12.1. Tenant shall use the Premises for the Permitted Use, and shall not use the Premises, or permit or suffer the Premises to be used, for any other purpose without Landlord's prior written consent, which consent Landlord may withhold in its sole and absolute discretion.

12.2. Tenant shall not use or occupy the Premises in violation of Applicable Laws; zoning ordinances; or the certificate of occupancy (or its substantial equivalent) issued for the Building or the Project, and shall, upon five (5) days' written notice from Landlord, discontinue any use of the Premises that is declared or claimed in writing by any Governmental Authority having jurisdiction to be a violation of any of the above. Tenant shall comply with any direction of any Governmental Authority having jurisdiction that shall, by reason of the nature of Tenant's use or occupancy of the Premises, impose any duty upon Tenant or Landlord with respect to the Premises or with respect to the use or occupation thereof, and shall indemnify, defend (at the option of and with counsel reasonably acceptable to the indemnified party(ies)), save, reimburse and hold harmless (collectively, "Indemnify" "Indemnity" or "Indemnification," as the case may require) Landlord and its affiliates, employees, agents and contractors; and any lender, mortgagee, ground lessor or beneficiary (each, a "Lender" and, collectively with Landlord and its affiliates, employees, agents and contractors, the "Landlord Indemnitees") harmless from and against any and all demands, claims, liabilities, losses, costs, expenses, actions, causes of action, damages, suits or judgments, and all reasonable expenses (including reasonable attorneys' fees, charges and disbursements, regardless of whether the applicable demand, claim, action, cause of action or suit is voluntarily withdrawn or dismissed) incurred in investigating or resisting the same (collectively, "Claims") of any kind or nature that arise before, during or after the Term as a result of Tenant's breach of this Section.

12.3. Tenant shall not do or permit to be done anything that will invalidate or increase the cost of any fire, environmental, extended coverage or any other insurance policy covering the Building or the Project, and shall comply with all rules, orders, regulations and requirements of the insurers of the Building and the Project, and Tenant shall promptly, upon demand, reimburse Landlord for any additional premium charged for such policy by reason of Tenant's failure to comply with the provisions of this Article.

12.4. Tenant shall keep all doors opening onto public corridors closed, except when in use for ingress and egress.

12.5. No additional locks or bolts of any kind shall be placed upon any of the doors or windows by Tenant, nor shall any changes be made to existing locks or the mechanisms thereof without Landlord's prior written consent. Tenant shall, upon termination of this Lease, return to Landlord all keys to offices and restrooms either furnished to or otherwise procured by Tenant. In the event any key so furnished to Tenant is lost, Tenant shall pay to Landlord the cost of replacing the same or of changing the lock or locks opened by such lost key if Landlord shall deem it necessary to make such change.

12.6. No awnings or other projections shall be attached to any outside wall of the Building. No curtains, blinds, shades or screens shall be attached to or hung in, or used in connection with, any window or door of the Premises other than Landlord's standard window coverings. Neither the interior nor exterior of any windows shall be coated or otherwise sunscreened without Landlord's prior written consent, nor shall any bottles, parcels or other articles be placed on the windowsills or items attached to windows that are visible from outside the Premises. No equipment, furniture or other items of personal property shall be placed on any exterior balcony without Landlord's prior written consent.

12.7. No sign, advertisement or notice ("Signage") shall be exhibited, painted or affixed by Tenant on any part of the Premises or the Building without Landlord's prior written consent. Signage shall conform to Landlord's design criteria. For any Signage, Tenant shall, at Tenant's own cost and expense, (a) acquire all permits for such Signage in compliance with Applicable Laws and (b) design, fabricate, install and maintain such Signage in a first-class condition and in compliance with all CC&Rs and Applicable Laws. Tenant shall be responsible for reimbursing Landlord for costs (including any restoration and repair of the Building) incurred by Landlord in removing any of Tenant's Signage upon the expiration or earlier termination of the Lease. Interior signs on entry doors to the Premises and the directory tablet shall be inscribed, painted or affixed for Tenant by Landlord at Tenant's sole cost and expense, and shall be of a size, color and type and be located in a place acceptable to Landlord. The directory tablet shall be provided exclusively for the display of the name and location of tenants only. Tenant shall not place anything on the exterior of the corridor walls or corridor doors other than Landlord's standard lettering. At Landlord's option, Landlord may install any Tenant Signage, and Tenant shall pay all costs associated with such installation within thirty (30) days after demand therefor.

12.8. Tenant may only place equipment within the Premises with floor loading consistent with the Building's structural design unless Tenant obtains Landlord's prior written approval. Tenant may place such equipment only in a location designed to carry the weight of such equipment.

12.9. Tenant shall cause any equipment or machinery to be installed in the Premises so as to reasonably prevent sounds or vibrations therefrom from extending into the Common Area or other offices in the Project.

12.10. Tenant shall not (a) do or permit anything to be done in or about the Premises that shall in any way obstruct or interfere with the rights of other tenants or occupants of the Project, or injure or annoy them, (b) use or allow the Premises to be used for immoral, unlawful or objectionable purposes, (c) cause, maintain or permit any nuisance or waste in, on or about the Project or (d) take any other action that would in Landlord's reasonable determination in any manner adversely affect other tenants' quiet use and enjoyment of their space or adversely impact their ability to conduct business in a professional and suitable work environment. Notwithstanding anything in this Lease to the contrary, Tenant may not install any security systems (including cameras) outside the Premises or that record sounds or images outside the Premises without Landlord's prior written consent, which Landlord may withhold in its sole and absolute discretion.

12.11. Notwithstanding any other provision herein to the contrary, Tenant shall be responsible for all liabilities, costs and expenses arising from or in connection with the compliance of the Premises with the Americans with Disabilities Act, 42 U.S.C. § 12101, et seq., and any state and local accessibility laws, codes, ordinances and rules (collectively, and together with regulations promulgated pursuant thereto, the "ADA"), and Tenant shall Indemnify the Landlord Indemnitees from and against any Claims arising from any such failure of the Premises to comply with the ADA. The Premises have not undergone inspection by a Certified Access Specialist ("CASp," as defined in California Civil Code Section 55.52). Even if not required by California law, the

Premises may be inspected by a CASp to determine whether the Premises comply with the ADA, and Landlord may not prohibit a CASp performing such an inspection. If Tenant requests that such an inspection take place, Landlord and Tenant shall agree on the time and manner of the inspection, as well as which party will pay the cost of the inspection and the cost to remedy any defects identified by the CASp. A Certified Access Specialist can inspect the Premises and determine whether the Premises comply with all of the applicable construction-related accessibility standards under State law. Although State law does not require a Certified Access Specialist inspection of the Premises, Landlord may not prohibit Tenant from obtaining a Certified Access Specialist inspection of the Premises for the occupancy or potential occupancy of Tenant, if requested by Tenant. Landlord and Tenant shall agree on the arrangements for the time and manner of the Certified Access Specialist inspection, the payment of the fee for the Certified Access Specialist inspection, and the cost of making any repairs necessary to correct violations of construction-related accessibility standards within the Premises. For the avoidance of doubt, "Lenders" shall also include historic tax credit investors and new market tax credit investors. The provisions of this Section shall survive the expiration or earlier termination of this Lease.

13. Rules and Regulations, CC&Rs, Parking Facilities and Common Area.

13.1. Tenant shall have the non-exclusive right, in common with others, to use the Common Area in conjunction with Tenant's use of the Premises for the Permitted Use, and such use of the Common Area and Tenant's use of the Premises shall be subject to the rules and regulations adopted by Landlord and attached hereto as Exhibit F, together with such other reasonable and nondiscriminatory rules and regulations as are hereafter promulgated by Landlord in its sole and absolute discretion (the "Rules and Regulations"). Tenant shall and shall ensure that its contractors, subcontractors, employees, subtenants and invitees faithfully observe and comply with the Rules and Regulations. Landlord shall not be responsible to Tenant for the violation or non-performance by any other tenant or any agent, employee or invitee thereof of any of the Rules and Regulations.

13.2. This Lease is subject to any recorded covenants, conditions or restrictions on the Project or Property, as the same may be amended, amended and restated, supplemented or otherwise modified from time to time (the "CC&Rs"). Tenant shall, at its sole cost and expense, comply with the CC&Rs.

13.3. Tenant shall have a non-exclusive, irrevocable license to use Tenant's Pro Rata Share of parking facilities serving the Building in common on an unreserved basis with other tenants of the Building during the Term at no additional cost.

13.4. Tenant agrees not to unreasonably overburden the parking facilities and agrees to cooperate with Landlord and other tenants in the use of the parking facilities. Landlord reserves the right to determine that parking facilities are becoming overcrowded and to limit Tenant's use thereof. Upon such determination, Landlord may reasonably allocate parking spaces among Tenant and other tenants of the Building or the Project. Nothing in this Section, however, is intended to create an affirmative duty on Landlord's part to monitor parking.

13.5. Subject to the terms of this Lease including the Rules and Regulations and the rights of other tenants of the Project, Tenant shall have the non-exclusive right to access the freight loading dock, at no additional cost.

14. Project Control by Landlord.

14.1. Landlord reserves full control over the Building and the Project to the extent not inconsistent with Tenant's enjoyment of the Premises as provided by this Lease. This reservation includes Landlord's right to subdivide the Project; convert the Building to condominium units; change the size of the Project by selling all or a portion of the Project or adding real property and any improvements thereon to the Project; grant easements and licenses to third parties; maintain or establish ownership of the Building separate from fee title to the Property; make additions to or reconstruct portions of the Building and the Project; install, use, maintain, repair, replace and relocate for service to the Premises and other parts of the Building or the Project pipes, ducts, conduits, wires and appurtenant fixtures, wherever located in the Premises, the Building or elsewhere at the Project; and alter or relocate any other Common Area or facility, including private drives, lobbies, entrances and landscaping; provided, however, that such rights shall be exercised in a way that does not materially adversely affect Tenant's beneficial use and occupancy of the Premises, including the Permitted Use and Tenant's access to the Premises. Tenant acknowledges that Landlord specifically reserves the right to allow the exclusive use of corridors and restroom facilities located on specific floors to one or more tenants occupying such floors; provided, however, that Tenant shall not be deprived of the use of the corridors reasonably required to serve the Premises or of restroom facilities serving the floor upon which the Premises are located.

14.2. Possession of areas of the Premises necessary for utilities, services, safety and operation of the Building is reserved to Landlord.

14.3. Tenant shall, at Landlord's request, promptly execute such further documents as may be reasonably appropriate to assist Landlord in the performance of its obligations hereunder; provided that Tenant need not execute any document that creates additional liability for Tenant or that deprives Tenant of the quiet enjoyment and use of the Premises as provided for in this Lease, increases Base Rent under this Lease, or changes the location or configuration of the Premises.

14.4. Landlord may, at any and all reasonable times during non-business hours (or during business hours, if (a) with respect to Subsections 14.4(u) through 14.4(y). Tenant so requests, and (b) with respect to Subsection l 4.4(z). if Landlord so requests), and upon twenty-four (24) hours' prior notice (which may be oral or by email to the office manager or other Tenant-designated individual at the Premises; but provided that no time restrictions shall apply or advance notice be required if an emergency necessitates immediate entry), enter the Premises to (u) inspect the same and to determine whether Tenant is in compliance with its obligations hereunder, (v) supply any service Landlord is required to provide hereunder, (w) alter, improve or repair any portion of the Building other than the Premises for which access to the Premises is reasonably necessary, (x) post notices of nonresponsibility, (y) access the telephone equipment, electrical substation and fire risers and (z) show the Premises to prospective tenants during the final year of the Term and current and prospective purchasers and lenders at any time. In connection with any such alteration, improvement or repair as described in Subsection 14.4(w). Landlord may erect in the Premises or elsewhere in the Project scaffolding and other structures reasonably required for the alteration, improvement or repair work to be performed. In no event shall Tenant's Rent abate as a result of Landlord's activities pursuant to this Section; provided, however, that all such activities shall be conducted in such a manner so as to cause as little interference to Tenant as is reasonably possible. Landlord shall at all times retain a key with which to unlock all of the doors in the Premises. If an emergency necessitates immediate access to the Premises, Landlord may use whatever force is necessary to enter the Premises, and any such entry to the Premises shall not constitute a forcible or unlawful entry to the Premises, a detainer of the Premises, or an eviction of Tenant from the Premises or any portion thereof.

15. Quiet Enjoyment. Landlord covenants that Tenant, upon paying the Rent and performing its obligations contained in this Lease, may peacefully and quietly have, hold and enjoy the Premises, free from any claim by Landlord or persons claiming under Landlord, but subject to all of the terms and provisions hereof, provisions of Applicable Laws and rights of record to which this Lease is or may become subordinate. This covenant is in lieu of any other quiet enjoyment covenant, either express or implied.

16. Utilities and Services.

16.1. Commencing on the Term Commencement Date, Tenant shall pay for all water (including the cost to service, repair and replace reverse osmosis, de-ionized and other treated water), gas, heat, light, power, telephone, internet service, cable television, other telecommunications and other utilities supplied to the Premises, together with any fees, surcharges and taxes thereon. If any such utility is not separately metered to Tenant, Tenant shall pay Tenant's Adjusted Share of all charges of such utility jointly metered with other premises as Additional Rent or, in the alternative, Landlord may, at its option, monitor the usage of such utilities by Tenant and charge Tenant with the cost of purchasing, installing and monitoring such metering equipment, which cost shall be paid by Tenant as Additional Rent. Landlord may base its bills for utilities on reasonable estimates; provided that Landlord adjusts such billings as part of the next Landlord's Statement (or more frequently, as determined by Landlord) to reflect the actual cost of providing utilities to the Premises. To the extent that Tenant uses more than Tenant's Pro Rata Share of any utilities, then Tenant shall pay Landlord for Tenant's Adjusted Share of such utilities to reflect such excess. In the event that the Building or Project is less than fully occupied during a calendar year, Tenant acknowledges that Landlord may extrapolate utility usage that varies depending on the occupancy of the Building or Project (as applicable) to equal Landlord's reasonable estimate of what such utility usage would have been had the Building or Project, as applicable, been ninety-five percent (95%) occupied during such calendar year; provided, however, that Landlord shall not recover more than one hundred percent (100%) of the cost of such utilities.

16.2. Landlord shall not be liable for, nor shall any eviction of Tenant result from, the failure to furnish any utility or service, whether or not such failure is caused by accidents; breakage; casualties (to the extent not caused by the party claiming Force Majeure); Severe Weather Conditions (as defined below); physical natural disasters (but excluding weather conditions that are not Severe Weather Conditions); strikes, lockouts or other labor disturbances or labor disputes (other than labor disturbances and labor disputes resulting solely from the acts or omissions of the party claiming Force Majeure); acts of terrorism; riots or civil disturbances; wars or insurrections; shortages of materials (which shortages are not unique to the party claiming Force Majeure); government regulations, moratoria or other governmental actions, inactions or delays; failures to grant consent or delays in granting consent by any Lender whose consent is required under any applicable Loan Document; failures by third parties to deliver gas, oil or another suitable fuel supply, or inability of the party claiming Force Majeure, by exercise of reasonable diligence, to obtain gas, oil or another suitable fuel; or other causes beyond the reasonable control of the party claiming that Force Majeure has occurred (collectively, "Force Majeure"); or, to the extent permitted by Applicable Laws, Landlord's negligence (provided that, this sentence shall not limit Tenant's recourse and remedy expressly set forth in this Section below in connection with a Material Services Failure (as defined below)). In the event of such failure, Tenant shall not be entitled to termination of this Lease or any abatement or reduction of Rent, nor shall Tenant be relieved from the operation of any covenant or agreement of this Lease. "Severe Weather Conditions" means weather conditions that are materially worse than those that reasonably

would be anticipated for the Property at the applicable time based on historic meteorological records. Notwithstanding anything to the contrary in this Lease, if, for more than ten (10) consecutive business days following written notice to Landlord and as a direct result of Landlord's gross negligence or willful misconduct (and except to the extent that such failure arises from any other factor, including any action or inaction of a Tenant Party (as defined below)), the provision of HVAC or other utilities to all or a material portion of the Premises that Landlord must provide pursuant to this Lease is interrupted (a "Material Services Failure"), then Base Rent and Tenant's Adjusted Share of Operating Expenses (or, to the extent that less than all of the Premises are affected, a proportionate amount (based on the Rentable Area of the Premises that is rendered unusable) of Base Rent and Tenant's Adjusted Share of Operating Expenses) shall thereafter be abated until the Premises are again usable by Tenant for the Permitted Use; provided, however, that, if Landlord is diligently pursuing the restoration of such HVAC and other utilities and Landlord provides substitute HVAC and other utilities reasonably suitable for Tenant's continued use and occupancy of the Premises for the Permitted Use (e.g., supplying potable water or potable air conditioning equipment), then neither Base Rent nor Tenant's Adjusted Share of Operating Expenses shall be abated. During any Material Services Failure, Tenant will cooperate with Landlord to arrange for the provision of any interrupted utility services on an interim basis via temporary measures until final corrective measures can be accomplished, and Tenant will permit Landlord the necessary access to the Premises to remedy such Material Service Failure. In the event of any interruption of HVAC or other utilities that Landlord must provide pursuant to this Lease, regardless of the cause, Landlord shall diligently pursue the restoration of such HVAC and other utilities. Notwithstanding anything in this Lease to the contrary, but subject to Article 24 (which shall govern in the event of a casualty), the provisions of this Section shall be Tenant's sole recourse and remedy in the event of an interruption of HVAC or other utilities to the Premises, including related to Section 16.8.

16.3. Tenant shall pay for, prior to delinquency of payment therefor, any utilities and services that may be furnished to the Premises during or, if Tenant occupies the Premises after the expiration or earlier termination of the Term, after the Term, beyond those utilities provided by Landlord, including telephone, internet service, cable television and other telecommunications, together with any fees, surcharges and taxes thereon. Upon Landlord's demand, utilities and services provided to the Premises that are separately metered shall be paid by Tenant directly to the supplier of such utilities or services.

16.4. Tenant shall not, without Landlord's prior written consent, use any device in the Premises (including data processing machines) that will in any way (a) increase the amount of ventilation, air exchange, gas, steam, electricity or water required or consumed in the Premises based upon Tenant's Pro Rata Share of the Building or Project (as applicable) beyond the existing capacity of the Building or the Project usually furnished or supplied for the Permitted Use or (b) exceed Tenant's Pro Rata Share of the Building's or Project's (as applicable) capacity to provide such utilities or services.

16.5. If Tenant shall require utilities or services in excess of those usually furnished or supplied for tenants in similar spaces in the Building or the Project by reason of Tenant's equipment or extended hours of business operations, then Tenant shall first procure Landlord's consent for the use thereof, which consent Landlord may condition upon the availability of such excess utilities or services, and Tenant shall pay as Additional Rent an amount equal to the cost of providing such excess utilities and services.

16.6. Landlord shall provide water in Common Area for lavatory and landscaping purposes only, which water shall be from the local municipal or similar source. Tenant shall not use or consume water provided to the Common Area for any purpose other than ordinary lavatory purposes.

16.7. Landlord reserves the right to stop service of the elevator, plumbing, ventilation, air conditioning and utility systems, when Landlord deems necessary or desirable, due to accident, emergency or the need to make repairs, alterations or improvements, until such repairs, alterations or improvements shall have been completed, and, except as provided in Section 16.2, Landlord shall further have no responsibility or liability for failure to supply elevator facilities, plumbing, ventilation, air conditioning or utility service when prevented from doing so by Force Majeure or, to the extent permitted by Applicable Laws, Landlord's negligence. Without limiting the foregoing, it is expressly understood and agreed that any covenants on Landlord's part to furnish any service pursuant to any of the terms, covenants, conditions, provisions or agreements of this Lease, or to perform any act or thing for the benefit of Tenant, shall not be deemed breached if Landlord is unable to furnish or perform the same by virtue of Force Majeure or, to the extent permitted by Applicable Laws, Landlord's negligence. Without limiting anything in this Lease to the contrary, including this Section, Landlord shall use reasonable efforts to minimize any material adverse impact on Tenant's use of the Premises for the Permitted Use in exercising Landlord's rights under this Section.

16.8. As of the Execution Date, there is an existing back-up generator serving the Premises and currently connected to the Premises' emergency electrical panel (the "Generator"). From and after the Term Commencement Date, Tenant shall be entitled to use up to Tenant's proportionate share (after deducting any power from the Generator required for the Common Area) of power from the Generator on a non-exclusive basis with other tenants in the Building. The cost of maintaining, repairing and replacing the Generator shall constitute Operating Expenses. Landlord expressly disclaims any warranties with regard to the Generator or the installation thereof, including any warranty of merchantability or fitness for a particular purpose. Landlord shall maintain the Generator and any equipment connecting the Generator to the Premises' emergency electrical panel in good working condition, provided, however, that Tenant shall be solely responsible, at Tenant's sole cost and expense, (and Landlord shall not be liable) for maintaining and operating the Premises' emergency electrical panel and the distribution of power from the Premises' emergency electrical panel throughout the Premises, and provided further that Landlord shall not be liable for any failure to make any repairs or to perform any maintenance of the Generator that is an obligation of Landlord unless and except to the extent that Landlord willfully fails to make such repairs or perform such maintenance and such failure persists for an unreasonable time after Tenant provides Landlord with written notice of the need for such repairs or maintenance. Upon receipt of such written notice, Landlord shall promptly commence to cure such failure and shall diligently prosecute the same to completion in accordance with Section 31.12 of this Lease. The provisions of Section 16.2 of this Lease shall apply to the Generator.

16.9. For the Premises, Landlord shall (a) maintain and operate the HVAC systems used for the Permitted Use only ("Base HVAC") and (b) subject to Subsection 16.9(a), furnish HVAC as reasonably required (except as this Lease otherwise provides) for reasonably comfortable occupancy of the Premises twenty-four (24) hours a day, every day during the Term, subject to casualty, eminent domain or as otherwise specified in this Article. Notwithstanding anything to the contrary in this Section, Landlord shall have no liability, and Tenant shall have no right or remedy, on account of any interruption or impairment in HVAC services.

16.10. Tenant, at its sole cost and expense, shall perform (or caused to be performed) all janitorial and trash removal service at the Premises; provided that, any vendor Tenant uses for any such service shall be subject to Landlord's prior written approval. Tenant will ensure that the Premises are kept and maintained in a manner consistent with an occupied Class "A" laboratory research and office building at all times.

16.11. For any utilities serving the Premises for which Tenant is billed directly by such utility provider, Tenant agrees to furnish to Landlord (a) any invoices or statements for such utilities within thirty (30) days after Tenant's receipt thereof, (b) within thirty (30) days after Landlord's request, any other utility usage information reasonably requested by Landlord, and (c) within thirty (30) days after each calendar year during the Term, authorization to allow Landlord to access Tenant's usage information necessary for Landlord to complete an ENERGY STAR® Statement of Performance (or similar comprehensive utility usage report (e.g., related to Labs 2 I), if requested by Landlord) and any other information reasonably requested by Landlord for the immediately preceding year; and Tenant shall comply with any other energy usage or consumption requirements required by Applicable Laws. Tenant shall retain records of utility usage at the Premises, including invoices and statements from the utility provider, for at least sixty (60) months, or such other period of time as may be requested by Landlord. Tenant acknowledges that any utility information for the Premises, the Building and the Project may be shared with third parties, including Landlord's consultants and Governmental Authorities. In the event that Tenant fails to comply with this Section (but without limiting any other right or remedy of Landlord under this Lease or otherwise), Tenant hereby authorizes Landlord to collect utility usage information directly from the applicable utility providers. In addition to the foregoing, Tenant shall comply with all Applicable Laws related to the disclosure and tracking of energy consumption at the Premises. The provisions of this Section shall survive the expiration or earlier termination of this Lease.

17. Alterations.

17.1. Tenant shall make no alterations, additions or improvements other than the Tenant Improvements in or to the Premises or engage in any construction, demolition, reconstruction, renovation or other work (whether major or minor) of any kind in, at or serving the Premises ("Alterations") without Landlord's prior written approval, which approval may be subject to the consent of one or more Lenders, if required under any applicable Loan Document, but which approval Landlord shall not otherwise unreasonably withhold; provided, however, that, in the event any proposed Alteration affects (a) any structural portions of the Building, including exterior walls, the roof, the foundation or slab, foundation or slab systems (including barriers and subslab systems) or the core of the Building, (b) the exterior of the Building or (c) any Building systems, including elevator, plumbing, HVAC, electrical, security, life safety and power, then Landlord may withhold its approval in its sole and absolute discretion. Tenant shall, in making any Alterations, use only those architects, contractors, suppliers and mechanics of which Landlord has given prior written approval, which approval shall be in Landlord's sole and absolute discretion. In seeking Landlord's approval, Tenant shall provide Landlord, at least sixty 60) days (except that, for the Tenant Improvements only, at least fifteen (15) business days) in advance of the desired commencement date of any proposed construction, with plans, specifications, bid proposals, certified stamped engineering drawings and calculations by Tenant's engineer of record or architect of record (including connections to the Building's structural system, modifications to the Building's envelope, non-structural penetrations in slabs or walls, and modifications or tie-ins to life safety

systems), work contracts, requests for laydown areas and such other information concerning the nature and cost of the Alterations as Landlord may reasonably request, provided that Tenant shall not commence any such Alterations that require Landlord's consent unless and until Tenant has received the written approval of Landlord and any and all Lenders whose consent is required under any applicable Loan Document. In no event shall Tenant use or Landlord be required to approve any architects, consultants, contractors, subcontractors or material suppliers that Landlord reasonably believes could cause labor dishannony or may not have sufficient experience, in Landlord's reasonable opinion, to perform work in an occupied Class "A" laboratory research building and in tenant-occupied lab areas. Notwithstanding the foregoing, Tenant may make strictly cosmetic changes to the Premises that do not require any permits or more than three (3) total contractors and subcontractors ("Cosmetic Alterations") without Landlord's consent; provided that (y) the cost of any Cosmetic Alterations does not exceed Fifty Thousand Dollars ($50,000) in any one instance or One Hundred Thousand Dollars ($100,000) annually, (z) such Cosmetic Alterations are not reasonably expected to have any material adverse effect on the Project and do not (i) require any structural or other substantial modifications to the Premises, (ii) require any changes to or adversely affect the Building systems, (iii) affect any portion of the Building or Project that is exterior to the Premises or (iv) trigger any requirement under Applicable Laws that would require Landlord to make any alteration or improvement to the Premises, the Building or the Project.

17.2. Tenant shall not construct or permit to be constructed partitions or other obstructions that might interfere with free access to mechanical installation or service facilities of the Building or with other tenants' components located within the Building, or interfere with the moving of Landlord's equipment to or from the enclosures containing such installations or facilities.

17.3. Tenant shall accomplish any work performed on the Premises or the Building in such a manner as to permit any life safety systems to remain fully operable at all times.

17.4. Any work performed on the Premises, the Building or the Project by Tenant or Tenant's contractors shall be done at such times and in such manner as Landlord may from time to time designate. Tenant covenants and agrees that all work done by Tenant or Tenant's contractors shall be performed in full compliance with Applicable Laws. Within thirty (30) days after completion of any Alterations, Tenant shall provide Landlord with complete "as built" drawing print sets and electronic CADD files on disc (or files in such other current format in common use as Landlord reasonably approves or requires) showing any changes in the Premises, as well as a commissioning report prepared by a licensed, qualified commissioning agent hired by Tenant and approved by Landlord for all new or affected mechanical, electrical and plumbing systems. Any such "as built" plans shall show the applicable Alterations as an overlay on the Building as-built plans: provided that Landlord provides the Building "as built" plans to Tenant.

17.5. Before commencing any Alterations or Tenant Improvements, Tenant shall (a) give Landlord at least sixty (60) days' (except that, for the Tenant Improvements only, at least fifteen (15) business days') prior written notice of the proposed commencement of such work and the names and addresses of the persons supply labor or materials therefor so that Landlord may enter the Premises to post and keep posted thereon and therein notices or to take any further action that Landlord may reasonably deem proper for the protection of Landlord's interest in the Project and (b) shall, if required by Landlord, secure, at Tenant's own cost and expense, a completion and lien indemnity bond satisfactory to Landlord for such work.

17.6. Tenant shall repair any damage to the Premises arising from Tenant's removal of any property from the Premises. During any such restoration period, Tenant shall pay Rent to Landlord as provided herein as if such space were otherwise occupied by Tenant. The provisions of this Section shall survive the expiration or earlier termination of this Lease.

17.7. The Premises plus any Alterations; Signage; Tenant Improvements; attached equipment, decorations, fixtures and trade fixtures; movable laboratory casework and related appliances; and other additions and improvements attached to or built into the Premises made by either of the parties (including all floor and wall coverings; paneling; sinks and related plumbing fixtures; laboratory benches; exterior venting fume hoods; walk-in freezers and refrigerators; ductwork; conduits; electrical panels and circuits; attached machinery and equipment; and built-in furniture and cabinets, in each case, together with all additions and accessories thereto), shall (unless, prior to such construction or installation, Landlord elects otherwise in writing) at all times remain the property of Landlord, shall remain in the Premises and shall (unless, prior to construction or installation thereof, Landlord elects otherwise in writing) be surrendered to Landlord upon the expiration or earlier termination of this Lease. For the avoidance of doubt, the items listed on Exhibit H attached hereto (which Exhibit H may be updated by Tenant from and after the Term Commencement Date, subject to Landlord's written consent) constitute Tenant's property and shall be removed by Tenant upon the expiration or earlier termination of the Lease.

17.8. Notwithstanding any other provision of this Article to the contrary, in no event shall Tenant remove any improvement, equipment or furniture from the Premises in which any Lender has a security interest or as to which Landlord contributed payment, including the Tenant Improvements and the Furniture Improvements, without Landlord's prior written consent, which consent Landlord may withhold in its sole and absolute discretion.

17.9. If Tenant shall fail to remove any of its property from the Premises prior to the expiration or earlier termination of this Lease, then Landlord may, at its option, remove the same in any manner that Landlord shall choose and store such effects without liability to Tenant for loss thereof or damage thereto, and Tenant shall pay Landlord, upon demand, any costs and expenses incurred due to such removal and storage or Landlord may, at its sole option and without notice to Tenant, sell such property or any portion thereof at private sale and without legal process for such price as Landlord may obtain and apply the proceeds of such sale against any (a) amounts due by Tenant to Landlord under this Lease and (b) any expenses incident to the removal, storage and sale of such personal property.

17.10. Tenant shall pay to Landlord an amount equal to three percent (3%) of the cost to Tenant of all Alterations to cover Landlord's overhead and expenses for plan review, engineering review, coordination, scheduling and supervision thereof or obtaining any required Lender consent. For purposes of payment of such sum, Tenant shall submit to Landlord copies of all bills, invoices and statements covering the costs of such charges, accompanied by payment to Landlord of the fee set forth in this Section. Tenant shall reimburse Landlord for any extra expenses incurred by Landlord by reason of faulty work done by Tenant or its contractors, or by reason of delays arising from such faulty work, or by reason of inadequate clean-up.

17.11. Within sixty (60) days after final completion of the Tenant Improvements or any Alterations performed by Tenant with respect to the Premises, Tenant shall submit to Landlord documentation showing the amounts expended by Tenant with respect to such Tenant Improvements and Alterations, together with supporting documentation reasonably acceptable to Landlord.

17.12. Tenant shall take, and shall cause its contractors to take, commercially reasonable steps to protect the Premises during the performance of any Alterations or Tenant Improvements, including covering or temporarily removing any window coverings so as to guard against dust, debris or damage.

17.13. Tenant shall require its contractors and subcontractors performing work on the Premises to name Landlord and its affiliates and Lenders as additional insureds on their respective insurance policies.

18. Repairs and Maintenance.

18.1. Landlord shall repair and maintain the structural and exterior portions and Common Area of the Building and the Project, including roofing and covering materials; foundations (excluding any architectural slabs, but including any structural slabs); exterior walls; base Building plumbing; base Building fire sprinkler systems (if any); base Building HVAC systems up to the first damper or isolation valve that serves the Premises (for purposes of clarity, the portion of the HVAC system that includes such first damper or isolation valve and extends into and through the Premises, and any supplemental HVAC serving the Premises shall not be part of the base Building HVAC and shall be Tenant's obligation to maintain and repair pursuant to Section 18.2 below); elevators; and base Building electrical systems installed or furnished by Landlord.

18.2. Except for services of Landlord, if any, required by Section 18.1, Tenant shall at Tenant's sole cost and expense maintain and keep the Premises (including but not limited to the portion of the HVAC system that includes the first damper or isolation valve and extends into and through the Premises, any supplemental HVAC serving the Premises, and any other systems or equipment exclusively serving the Premises) and every part thereof in good condition and repair, damage thereto from ordinary wear and tear excepted, and shall, within ten (10) days after receipt of written notice from Landlord, provide to Landlord any maintenance records that Landlord reasonably requests. Tenant shall, upon the expiration or sooner termination of the Term, surrender the Premises to Landlord in as good a condition as when received, ordinary wear and tear excepted and with the Tenant Improvements in substantially the same condition as existed on the date the Tenant Improvements were completed; and shall, at Landlord's request and Tenant's sole cost and expense, remove all telephone and data systems, wiring and equipment from the Premises, and repair any damage to the Premises caused thereby. Landlord shall have no obligation to alter, remodel, improve, repair, decorate or paint the Premises or any part thereof, other than pursuant to the terms and provisions of the Work Letter.

18.3. Landlord shall not be liable for any failure to make any repairs or to perform any maintenance that is Landlord's obligation pursuant to this Lease unless such failure shall persist for an unreasonable time after Tenant provides Landlord with written notice of the need of such repairs or maintenance. Tenant waives its rights under Applicable Laws now or hereafter in effect to make repairs at Landlord's expense.

18.4. If any excavation shall be made upon land adjacent to or under the Building, or shall be authorized to be made, Tenant shall afford to the person causing or authorized to cause such excavation, license to enter the Premises for the purpose of performing such work as such person shall deem necessary or desirable to preserve and protect the Building from injury or damage and to support the same by proper foundations, without any claim for damages or liability against Landlord and without reducing or otherwise affecting Tenant's obligations under this Lease.

18.5. This Article relates to repairs and maintenance arising in the ordinary course of operation of the Building and the Project. In the event of a casualty described in Article 24, Article 24 shall apply in lieu of this Article. In the event of eminent domain, Article 25 shall apply in lieu of this Article.

18.6. Costs incurred by Landlord pursuant to this Article shall constitute Operating Expenses.

19. Liens.

19.1. Subject to the immediately succeeding sentence, Tenant shall keep the Premises, the Building and the Project free from any liens arising from work or services performed, materials furnished to or obligations incurred by Tenant. Tenant further covenants and agrees that any mechanic's or materialman's lien filed against the Premises, the Building or the Project for work or services claimed to have been done for, or materials claimed to have been furnished to, or obligations incurred by Tenant shall be discharged or bonded by Tenant within ten (10) days after the filing thereof, at Tenant's sole cost and expense.

19.2. Should Tenant fail to discharge or bond against any lien of the nature described in Section 19.1, Landlord may, at Landlord's election, pay such claim or post a statutory lien bond or otherwise provide security to eliminate the lien as a claim against title, and Tenant shall immediately reimburse Landlord for the costs thereof as Additional Rent. Tenant shall Indemnify the Landlord Indemnitees from and against any Claims arising from any such liens, including any administrative, court or other legal proceedings related to such liens.

19.3. In the event that Tenant leases or finances the acquisition of office equipment, furnishings or other personal property of a removable nature utilized by Tenant in the operation of Tenant's business, Tenant warrants that any Uniform Commercial Code financing statement shall, upon its face or by exhibit thereto, indicate that such financing statement is applicable only to removable personal property of Tenant located within the Premises. In no event shall the address of the Premises, the Building or the Project be furnished on a financing statement without qualifying language as to applicability of the lien only to removable personal property located in an identified suite leased by Tenant. Should any holder of a financing statement record or place of record a financing statement that appears to constitute a lien against any interest of Landlord or against equipment that may be located other than within an identified suite leased by Tenant, Tenant shall, within ten (10) days after filing such financing statement, cause (a) a copy of the lender security agreement or other documents to which the financing statement pertains to be furnished to Landlord to facilitate Landlord's ability to demonstrate that the lien of such financing statement is not applicable to Landlord's interest and (b) Tenant's lender to amend such financing statement and any other documents of record to clarify that any liens imposed thereby are not applicable to any interest of Landlord in the Premises, the Building or the Project.

20. Estoppel Certificate. Tenant shall, within ten (10) business days after receipt of written notice from Landlord, execute, acknowledge and deliver a statement in writing substantially in the form attached to this Lease as Exhibit I, or on any other form reasonably requested by a current or proposed Lender or encumbrancer or proposed purchaser, (a) certifying that this Lease is unmodified and in full force and effect (or, if modified, stating the nature of such modification and certifying that this Lease as so modified is in full force and effect) and the dates to which rental and other charges are paid in advance, if any, (b) acknowledging that there are not, to Tenant's

knowledge, any uncured defaults on the part of Landlord hereunder, or specifying such defaults if any are claimed, and (c) setting forth such further information with respect to this Lease or the Premises as may be requested thereon. Any such statements may be relied upon by any prospective purchaser or encumbrancer of all or any portion of the Property. Tenant's failure to deliver any such statement within such the prescribed time shall, at Landlord's option, constitute a Default (as defined below) under this Lease, and, in any event, shall be binding upon Tenant that the Lease is in full force and effect and without modification except as may be represented by Landlord in any certificate prepared by Landlord and delivered to Tenant for execution.

21. Hazardous Materials.

21.1. Tenant shall not cause or permit any Hazardous Materials (as defined below) to be brought upon, kept or used in or about the Premises, the Building or the Project in violation of Applicable Laws by Tenant or any of its employees, agents, contractors or invitees (collectively with Tenant, each a "Tenant Party"). If (a) Tenant breaches such obligation, (b) the presence of Hazardous Materials as a result of such a breach results in contamination of the Project, any portion thereof, or any adjacent property, (c) contamination of the Premises otherwise occurs during the Term or any extension or renewal hereof or holding over hereunder or (d) contamination of the Project occurs as a result of Hazardous Materials that are placed on or under or are released into the Project by a Tenant Party, then Tenant shall Indemnify the Landlord Indemnitees from and against any and all Claims of any kind or nature, including (w) diminution in value of the Project or any portion thereof, (x) damages for the loss or restriction on use of rentable or usable space or of any amenity of the Project, (y) damages arising from any adverse impact on marketing of space in the Project or any portion thereof and (z) sums paid in settlement of Claims that arise before, during or after the Term as a result of such breach or contamination. This Indemnification by Tenant includes costs incurred in connection with any investigation of site conditions or any clean-up, remedial, removal or restoration work required by any Governmental Authority because of Hazardous Materials present in the air, soil or groundwater above, on, under or about the Project. Without limiting the foregoing, if the presence of any Hazardous Materials in, on, under or about the Project, any portion thereof or any adjacent property caused or permitted by any Tenant Party results in any contamination of the Project, any portion thereof or any adjacent property, then Tenant shall promptly take all actions at its sole cost and expense as are necessary to return the Project, any portion thereof or any adjacent property to its respective condition existing prior to the time of such contamination; provided that Landlord's written approval of such action shall first be obtained, which approval Landlord shall not unreasonably withhold; and provided, further, that it shall be reasonable for Landlord to withhold its consent if such actions could have a material adverse long-term or short-term effect on the Project, any portion thereof or any adjacent property. Tenant's obligations under this Section shall not be affected, reduced or limited by any limitation on the amount or type of damages, compensation or benefits payable by or for Tenant under workers' compensation acts, disability benefit acts, employee benefit acts or similar legislation.

21.2. Landlord acknowledges that it is not the intent of this Article to prohibit Tenant from operating its business for the Permitted Use. Tenant may operate its business according to the custom of Tenant's industry so long as the use or presence of Hazardous Materials is strictly and properly monitored in accordance with Applicable Laws. As a material inducement to Landlord to allow Tenant to use Hazardous Materials in connection with its business, Tenant agrees to deliver to Landlord (a) a list identifying each type of Hazardous Material to be present at the Premises that is subject to regulation under any environmental Applicable Laws in the form of a Tier II

form pursuant to Section 312 of the Emergency Planning and Community Right-to-Know Act of 1986 (or any successor statute) or any other form reasonably requested by Landlord, (b) a list of any and all approvals or permits from Governmental Authorities required in connection with the presence of such Hazardous Material at the Premises and (c) correct and complete copies of (i) notices of violations of Applicable Laws related to Hazardous Materials and (ii) plans relating to the installation of any storage tanks to be installed in, on, under or about the Project (provided that installation of storage tanks shall only be permitted after Landlord has given Tenant its written consent to do so, which consent Landlord may withhold in its sole and absolute discretion) and closure plans or any other documents required by any and all Governmental Authorities for any storage tanks installed in, on, under or about the Project for the closure of any such storage tanks (collectively, "Hazardous Materials Documents"). Tenant shall deliver to Landlord updated Hazardous Materials Documents, within fourteen (I 4) days after receipt of a written request therefor from Landlord, not more often than once per year, unless (m) there are any changes to the Hazardous Materials Documents or (n) Tenant initiates any Alterations or changes its business, in either case in a way that involves any material increase in the types or amounts of Hazardous Materials, in which case Tenant shall deliver updated Hazardous Materials documents (without Landlord having to request them) before or, if not practicable to do so before, as soon as reasonably practicable after the occurrence of the events in Subsection 21.2(111) or (n). For each type of Hazardous Material listed, the Hazardous Materials Documents shall include (t) the chemical name, (u) the material state (e.g., solid, liquid, gas or cryogen), (v) the concentration, (w) the storage amount and storage condition (e.g., in cabinets or not in cabinets), (x) the use amount and use condition (e.g., open use or closed use), (y) the location (e.g., room number or other identification) and (z) if known, the chemical abstract service number. Notwithstanding anything in this Section to the contrary, Tenant shall not be required to provide Landlord with any documents containing information of a proprietary nature, unless such documents contain a reference to Hazardous Materials or activities related to Hazardous Materials. Landlord may, at Landlord's expense, cause the Hazardous Materials Documents to be reviewed by a person or firm qualified to analyze Hazardous Materials to confirm compliance with the provisions of this Lease and with Applicable Laws. In the event that a review of the Hazardous Materials Documents indicates non-compliance with this Lease or Applicable Laws, Tenant shall, at its expense, diligently take steps to bring its storage and use of Hazardous Materials into compliance. Notwithstanding anything in this Lease to the contrary or Landlord's review into Tenant's Hazardous Materials Documents or use or disposal of hazardous materials, however, Landlord shall not have and expressly disclaims any liability related to Tenant's or other tenants' use or disposal of Hazardous Materials, it being acknowledged by Tenant that Tenant is best suited to evaluate the safety and efficacy of its Hazardous Materials usage and procedures.

21.3. Tenant represents and wan-ants to Landlord that is not nor has it been, in connection with the use, disposal or storage of Hazardous Materials, (a) subject to a material enforcement order issued by any Governmental Authority or (b) required to take any remedial action.

21.4. At any time, and from time to time, prior to the expiration of the Term, Landlord shall have the right to conduct appropriate tests of the Project or any portion thereof to demonstrate that Hazardous Materials are present or that contamination has occurred due to the acts or omissions of a Tenant Party. Tenant shall pay all reasonable costs of such tests if such tests reveal that Hazardous Materials exist at the Project in violation of this Lease.

21.5. If underground or other storage tanks storing Hazardous Materials installed or utilized by Tenant are located on the Premises, or are hereafter placed on the Premises by Tenant (or by any other party, if such storage tanks are utilized by Tenant), then Tenant shall monitor the storage tanks, maintain appropriate records, implement reporting procedures, properly close any underground storage tanks, and take or cause to be taken all other steps necessary or required under the Applicable Laws. Tenant shall have no responsibility or liability for underground or other storage tanks installed by anyone other than Tenant unless Tenant utilizes such tanks, in which case Tenant's responsibility for such tanks shall be as set forth in this Section.

21.6. Tenant shall promptly report to Landlord any actual or suspected presence of mold or water intrusion at the Premises.

21.7. Tenant's obligations under this Article shall survive the expiration or earlier termination of the Lease. During any period of time needed by Tenant or Landlord after the termination of this Lease to complete the removal from the Premises of any such Hazardous Materials, Tenant shall be deemed a holdover tenant and subject to the provisions of Article 27.

21.8. As used herein, the term "Hazardous Material" means any toxic, explosive, corrosive, flammable, infectious, radioactive, carcinogenic, mutagenic or otherwise hazardous substance, material or waste that is or becomes regulated by Applicable Laws or any Governmental Authority.

21.9. Notwithstanding anything to the contrary in this Lease, Landlord shall have sole control over the equitable allocation of fire control areas (as defined in the Uniform Building Code as adopted by the city or municipality(ies) in which the Project is located (the "UBC")) within the Project for the storage of Hazardous Materials. Notwithstanding anything to the contrary in this Lease, the quantity of Hazardous Materials allowed by this Section is specific to Tenant and shall not run with the Lease in the event of a Transfer (as defined in Article 29). In the event of a Transfer, if the use of Hazardous Materials by such new tenant ("New Tenant") is such that New Tenant utilizes fire control areas in the Project in excess of New Tenant's Pro Rata Share of the Building or the Project, as applicable, then New Tenant shall, at its sole cost and expense and upon Landlord's written request, establish and maintain a separate area of the Premises classified by the UBC as an "H" occupancy area for the use and storage of Hazardous Materials, or take such other action as is necessary to ensure that its share of the fire control areas of the Building and the Project is not greater than New Tenant's Pro Rata Share of the Building or the Project, as applicable. Notwithstanding anything in this Lease to the contrary, Landlord shall not have and expressly disclaims any liability related to Tenant's or other tenants' use or disposal of fire control areas, it being acknowledged by Tenant that Tenant and other tenants are best suited to evaluate the safety and efficacy of its Hazardous Materials usage and procedures.

22. Odors and Exhaust. Tenant acknowledges that Landlord would not enter into this Lease with Tenant unless Tenant assured Landlord that under no circumstances will any other occupants of the Building or the Project (including persons legally present in any outdoor areas of the Project) be subjected to odors or fumes (whether or not noxious), and that the Building and the Project will not be damaged by any exhaust, in each case from Tenant's operations. Landlord and Tenant therefore agree as follows:

22.1. Tenant shall not cause or permit (or conduct any activities that would cause) any release of any odors or fumes of any kind from the Premises.

22.2. If the Building has a ventilation system that, in Landlord's judgment, is adequate, suitable, and appropriate to vent the Premises in a manner that does not release odors affecting any indoor or outdoor part of the Project, Tenant shall vent the Premises through such system. If Landlord at any time determines that any existing ventilation system is inadequate, or if no ventilation system exists, Tenant shall in compliance with Applicable Laws vent all fumes and odors from the Premises (and remove odors from Tenant's exhaust stream) as Landlord requires. The placement and configuration of all ventilation exhaust pipes, louvers and other equipment shall be subject to Landlord's approval. Tenant acknowledges Landlord's legitimate desire to maintain the Project (indoor and outdoor areas) in an odor-free manner, and Landlord may require Tenant to abate and remove all odors in a manner that goes beyond the requirements of Applicable Laws.

22.3. Tenant shall, at Tenant's sole cost and expense, provide odor eliminators and other devices (such as filters, air cleaners, scrubbers and whatever other equipment may in Landlord's judgment be necessary or appropriate from time to time) to completely remove, eliminate and abate any odors, fumes or other substances in Tenant's exhaust stream that, in Landlord's judgment, emanate from Tenant's Premises. Any work Tenant performs under this Section shall constitute Alterations.

22.4. Tenant's responsibility to remove, eliminate and abate odors, fumes and exhaust shall continue throughout the Tenn. Landlord's approval of the Tenant Improvements shall not preclude Landlord from requiring additional measures to eliminate odors, fumes and other adverse impacts of Tenant's exhaust stream (as Landlord may designate in Landlord's discretion). Tenant shall install additional equipment as Landlord requires from time to time under the preceding sentence. Such installations shall constitute Alterations.

22.5. If Tenant fails to install satisfactory odor control equipment within ten (10) business days after Landlord's demand made at any time, then Landlord may, without limiting Landlord's other rights and remedies, require Tenant to cease and suspend any operations in the Premises that, in Landlord's determination, cause odors, fumes or exhaust. For example, if Landlord determines that Tenant's production of a certain type of product causes odors, fumes or exhaust, and Tenant does not install satisfactory odor control equipment within ten (10) business days after Landlord's request, then Landlord may require Tenant to stop producing such type of product in the Premises unless and until Tenant has installed odor control equipment satisfactory to Landlord. Notwithstanding the foregoing, if such installation of satisfactory odor control equipment cannot reasonably be completed within such ten (10) business day period despite Tenant's timely and diligent pursuit thereof and the presence of odors, fumes or exhaust does not create or result in a health or safety concern, then Landlord shall forbear from exercising any remedies in connection therewith so long as Tenant completes any such installation no later than twenty (20) business days after Landlord's demand.

23. Insurance.

23.1. Landlord shall maintain insurance for the Building and the Project in amounts equal to full replacement cost (exclusive of the costs of excavation, foundations and footings, engineering costs or such other costs to the extent the same are not incurred in the event of a rebuild and without reference to depreciation taken by Landlord upon its books or tax returns) or such lesser coverage as Landlord may elect, provided that such coverage shall not be less than the

amount of such insurance Landlord's Lender, if any, requires Landlord to maintain, providing protection against any peril generally included within the classification "Fire and Extended Coverage," together with insurance against sprinkler damage (if applicable), vandalism and malicious mischief. Landlord, subject to availability thereof, shall further insure, if Landlord deems it appropriate, coverage against flood, environmental hazard, earthquake, loss or failure of building equipment, rental loss during the period of repairs or rebuilding, Workers' Compensation insurance and fidelity bonds for employees employed to perform services. Notwithstanding the foregoing, Landlord may, but shall not be deemed required to, provide insurance for any improvements installed by Tenant or that are in addition to the standard improvements customarily furnished by Landlord, without regard to whether or not such are made a part of or are affixed to the Building.

23.2. In addition, Landlord shall carry Commercial General Liability insurance with limits of not less than One Million Dollars ($1,000,000) per occurrence/general aggregate for bodily injury (including death), or property damage with respect to the Project.

23.3. Tenant shall, at its own cost and expense, procure and maintain during the Term the following insurance for the benefit of Tenant and Landlord (as their interests may appear) with insurers financially acceptable and lawfully authorized to do business in the state where the Premises are located:

(a) Commercial General Liability insurance on a broad-based occurrence coverage form, with coverages including but not limited to bodily injury (including death), property damage (including loss of use resulting therefrom), premises/operations, personal & advertising injury, and contractual liability with limits of liability of not less than $2,000,000 for bodily injury and property damage per occurrence, $4,000,000 general aggregate, which limits may be met by use of excess and/or umbrella liability insurance; provided that such coverage is at least as broad as the primary coverages required herein.

(b) Commercial Automobile Liability insurance covering liability arising from the use or operation of any auto on behalf of Tenant or invited by Tenant (including those owned, hired, rented, leased, borrowed, scheduled or non-owned). Coverage shall be on a broad-based occurrence form in an amount not less than $2,000,000 combined single limit per accident for bodily injury and property damage. Such coverage shall apply to all vehicles and persons, whether accessing the property with active or passive consent.

(c) Commercial Property insurance covering property damage to the full replacement cost value and business interruption. Covered property shall include all tenant improvements in the Premises (to the extent not insured by Landlord pursuant to Section 23.1) and Tenant's Property including personal property, furniture, fixtures, machinery, equipment, stock, inventory and improvements and betterments, which may be owned by Tenant or Landlord and required to be insured hereunder, or which may be leased, rented, borrowed or in the care custody or control of Tenant, or Tenant's agents, employees or subcontractors. Such insurance, with respect only to all Tenant Improvements, Alterations or other work performed on the Premises by Tenant (collectively, "Tenant Work"), shall name Landlord and Landlord's current and future mortgagees as loss payees as their interests may appear. Such insurance shall be written on an "all risk" of physical loss or damage basis including the perils of fire, extended coverage, electrical injury,

mechanical breakdown, windstorm, vandalism, malicious mischief, sprinkler leakage, back-up of sewers or drains, flood, earthquake, terrorism and such other risks Landlord may from time to time designate, for the full replacement cost value of the covered items with an agreed amount endorsement with no co-insurance. Business interruption coverage shall have limits sufficient to cover Tenant's lost profits and necessary continuing expenses, including rents due Landlord under the Lease. The minimum period of indemnity for business interruption coverage shall be twelve (12) months.

(d) Workers' Compensation in compliance with all Applicable Laws or as may be available on a voluntary basis. Employer's Liability must be at least in the amount of $1,000,000 for bodily injury by accident for each employee, $1,000,000 for bodily injury by disease for each employee, and $1,000,000 bodily injury by disease for policy limit.

(e) Medical malpractice insurance at limits of not less than $1,000,000 each claim during such periods, if any, that Tenant engages in the practice of medicine or clinical trials involving human beings at the Premises. For the avoidance of doubt, Tenant shall not be required to carry the foregoing medical malpractice insurance so long as Tenant is not (i) treating patients at the Premises, (ii) conducting clinical trials on human beings at the Premises or (iii) otherwise engaging in the practice of medicine at the Premises.

(f) Pollution Legal Liability insurance is required if Tenant stores, handles, generates or treats Hazardous Materials, as determined solely by Landlord, on or about the Premises. Such coverage shall include bodily injury, sickness, disease, death or mental anguish or shock sustained by any person; property damage including physical injury to or destruction of tangible property including the resulting loss of use thereof, clean-up costs, and the loss of use of tangible property that has not been physically injured or destroyed; and defense costs, charges and expenses incurred in the investigation, adjustment or defense of claims for such compensatory damages. Coverage shall apply to both sudden and non-sudden pollution conditions including the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gases, waste materials or other irritants, contaminants or pollutants into or upon land, the atmosphere or any watercourse or body of water. Claims-made coverage is permitted, provided the policy retroactive date is continuously maintained prior to the commencement date of this agreement, and coverage is continuously maintained during all periods in which Tenant occupies the Premises. Coverage shall be maintained with limits of not less than $2,000,000 per incident with a $4,000,000 policy aggregate and for a period of two (2) years thereafter.

(g) During all construction by Tenant at the Premises, with respect to tenant improvements being constructed (including the Tenant Improvements and any Alterations, insurance required in Exhibit B-1 must be in place.

23.4. The insurance required of Tenant by this Article shall be with companies at all times having a current rating of not less than A- and financial category rating of at least Class VII in "A.M. Best's Insurance Guide" current edition. Tenant shall obtain for Landlord from the insurance companies/broker or cause the insurance companies/broker to furnish certificates of insurance evidencing all coverages required herein to Landlord. Landlord reserves the right to require complete, certified copies of all required insurance policies including any endorsements. No such policy shall be cancelable or subject to reduction of coverage or other modification or cancellation

except after thirty (30) days' prior written notice to Landlord from Tenant or its insurers (except in the event of non-payment of premium, in which case ten (10) days' written notice shall be given). All such policies shall be written as primary policies, not contributing with and not in excess of the coverage that Landlord may can-y. Tenant's required policies shall contain severability of interests clauses stating that, except with respect to limits of insurance, coverage shall apply separately to each insured or additional insured. Tenant shall, on the date of expiration of such policies, furnish Landlord with renewal certificates of insurance or binders. Tenant agrees that if Tenant does not take out and maintain such insurance, Landlord may (but shall not be required to) procure such insurance on Tenant's behalf and at its cost to be paid by Tenant as Additional Rent. Commercial General Liability, Commercial Automobile Liability, Umbrella Liability and Pollution Legal Liability insurance as required above shall name Landlord, BioMed Realty LLC, BioMed Realty, L.P., BRE Edison L.P., BRE Edison LLC, BRE Edison Holdings L.P., BRE Edison Holdings LLC, BRE Edison Parent L.P. and their respective officers, employees, agents, general partners, members, subsidiaries, affiliates and Lenders ("Landlord Parties") as additional insureds as respects liability arising from work or operations performed by or on behalf of Tenant, Tenant's use or occupancy of Premises, and ownership, maintenance or use of vehicles by or on behalf of Tenant.

23.5. In each instance where insurance is to name Landlord Parties as additional insureds, Tenant shall, upon Landlord's written request, also designate and furnish certificates evidencing such Landlord Parties as additional insureds to (a) any Lender of Landlord holding a security interest in the Building or the Project, (b) the landlord under any lease whereunder Landlord is a tenant of the real property upon which the Building is located if the interest of Landlord is or shall become that of a tenant under a ground lease rather than that of a fee owner and (c) any management company retained by Landlord to manage the Project.

23.6. Tenant assumes the risk of damage to any fixtures, goods, inventory, merchandise, equipment and leasehold improvements, and Landlord shall not be liable for injury to Tenant's business or any loss of income therefrom, relative to such damage, all as more particularly set forth within this Lease. Tenant shall, at Tenant's sole cost and expense, cany such insurance as Tenant desires for Tenant's protection with respect to personal property of Tenant or business interruption.

23.7. Tenant, on behalf of itself and its insurers, hereby waives any and all rights of recovery against the Landlord Parties with respect to any loss, damage, claims, suits or demands, howsoever caused, that are covered, or should have been covered, by valid and collectible workers' compensation, employer's liability insurance and other liability insurance required to obtained and carried by Tenant pursuant to this Article, including any deductibles or self-insurance maintained thereunder. Tenant agrees to endorse the required workers' compensation, employer's liability and other liability insurance policies to permit waivers of subrogation as required hereunder and hold harmless and indemnify the Landlord Parties for any loss or expense incurred as a result of a failure to obtain such waivers of subrogation from insurers. Such waivers shall continue so long as Tenant's insurers so permit. Any termination of such a waiver shall be by written notice to Landlord, containing a description of the circumstances hereinafter set forth in this Section. Tenant, upon obtaining the policies of workers' compensation, employer's liability and other liability insurance required or permitted under this Lease, shall give notice to its insurance carriers that the foregoing waiver of subrogation is contained in this Lease. If such policies shall not be obtainable with such waiver or shall be so obtainable only at a premium over that chargeable without such waiver, then Tenant shall notify Landlord of such conditions.

23.8. Landlord may require insurance policy limits required under this Lease to be raised to conform with requirements of Landlord's Lender or to bring coverage limits to levels then being required of new tenants within the Project.

23.9. In addition to other insurance required by this Lease to be carried by Tenant, if Tenant sells, merchandises, transfers, gives away or exchanges so-called "alcoholic liquors" in, upon or from any part of the Premises, then Tenant shall, at Tenant's sole cost and expense, purchase and maintain in full force and effect during the Term dram shop insurance in form and substance satisfactory to Landlord, with total limits of liability for bodily injury, loss of means of support and property damage for each occurrence in an amount and with a carrier reasonably acceptable to Landlord, and otherwise in compliance with the general provisions of this Article governing the provision of insurance by Tenant. Such policy shall name Landlord and the Landlord Parties as additional insureds against any liability by virtue of Applicable Laws concerning the use, sale or giving away of alcoholic liquors. If at any time such insurance is for any reason not in force, then during all and any such times no selling, merchandising, transferring, giving away or exchanging of so-called "alcoholic liquors" shall be conducted by Tenant in, upon or from any part of the Premises.

23.10. Any costs incurred by Landlord pursuant to this Article shall constitute a portion of Operating Expenses.

23.11. The provisions of this Article shall survive the expiration or earlier termination of this Lease.

24. Damage or Destruction.

24.1. In the event of a partial destruction of (a) the Premises, (b) the Building, (c) the Common Area or (d) the Project ((a)-(d) collectively, the "Affected Areas") by fire or other perils covered by extended coverage insurance not exceeding twenty-five percent (25%) of the full insurable value thereof, and provided that (w) the damage thereto is such that the Affected Areas may be repaired, reconstructed or restored within a period of six (6) months from the date of the happening of such casualty, (x) Landlord shall receive insurance proceeds from its insurer or Lender sufficient to cover the cost of such repairs, reconstruction and restoration (except for any deductible amount provided by Landlord's policy, which deductible amount, if paid by Landlord, shall constitute an Operating Expense), (y) the repair, reconstruction or restoration of the Affected Areas is permitted by all applicable Loan Documents or otherwise consented to by any and all Lenders whose consent is required thereunder and (z) such casualty was not intentionally caused by a Tenant Party, then Landlord shall commence and proceed diligently with the work of repair, reconstruction and restoration of the Affected Areas and this Lease shall continue in full force and effect.

24.2. In the event of any damage to or destruction of the Building or the Project other than as described in Section 24.1, Landlord may elect to repair, reconstruct and restore the Building or the Project, as applicable, in which case this Lease shall continue in full force and effect. If Landlord elects not to repair, reconstruct and restore the Building or the Project, as applicable, (including, without limitation, any such election made pursuant to Section 24.6 or Section 24.8 below) then this Lease shall terminate as of the date of such damage or destruction. In the event of any damage or destruction (regardless of whether such damage is governed by Section 24.1 or this Section), if in Landlord's determination as set forth in the Damage Repair Estimate (as defined below), the Affected Areas cannot be repaired, reconstructed or restored within twelve (12) months after the date of the Damage Repair Estimate, then Tenant shall have the right to terminate this Lease, effective as of the date of such damage or destruction, by delivering to Landlord its written notice of termination no later than fifteen (15) days after Landlord delivers to Tenant Landlord's Damage Repair Estimate.

24.3. As soon as reasonably practicable, but in any event within sixty (60) days following the date of damage or destruction, Landlord shall notify Tenant of Landlord's good faith estimate of the period of time in which the repairs, reconstruction and restoration will be completed (the "Damage Repair Estimate"), which estimate shall be based upon the opinion of a contractor reasonably selected by Landlord and experienced in comparable repair, reconstruction and restoration of similar buildings. Additionally, Landlord shall give written notice to Tenant within sixty (60) days following the date of damage or destruction of its election not to repair, reconstruct or restore the Building or the Project, as applicable.

24.4. Upon any termination of this Lease under any of the provisions of this Article, the parties shall be released thereby without further obligation to the other from the date possession of the Premises is surrendered to Landlord, except with regard to (a) items occurring prior to the damage or destruction and (b) provisions of this Lease that, by their express terms, survive the expiration or earlier termination hereof.

24.5. In the event of repair, reconstruction and restoration as provided in this Article, all Rent to be paid by Tenant under this Lease shall be abated proportionately based on the extent to which Tenant's use of the Premises is impaired during the period of such repair, reconstruction or restoration, unless Landlord provides Tenant with other space during the period of repair, reconstruction and restoration that, in Tenant's reasonable opinion, is suitable for the temporary conduct of Tenant's business; provided, however, that the amount of such abatement shall be reduced by the amount of Rent that is received by Tenant as part of the business interruption or loss of rental income with respect to the Premises from the proceeds of business interruption or loss of rental income insurance.

24.6. Notwithstanding anything to the contrary contained in this Article, (a) Landlord shall not be required to repair, reconstruct or restore any damage or destruction to the extent that Landlord is prohibited from doing so by any applicable Loan Document or any Lender whose consent is required thereunder withholds its consent, and (b) should Landlord be delayed or prevented from completing the repair, reconstruction or restoration of the damage or destruction to the Premises after the occurrence of such damage or destruction by Force Majeure or delays caused by a Lender or Tenant Party, then the time for Landlord to commence or complete repairs, reconstruction and restoration shall be extended on a day-for-day basis; provided, however, that, at Landlord's election, Landlord shall be relieved of its obligation to make such repairs, reconstruction and restoration.

24.7. If Landlord is obligated to or elects to repair, reconstruct or restore as herein provided, then Landlord shall be obligated to make such repairs, reconstruction or restoration only with regard to (a) those portions of the Premises that were originally provided at Landlord's expense and (b) the Common Area portion of the Affected Areas. The repairs, reconstruction or restoration of improvements not originally provided by Landlord or at Landlord's expense shall be the obligation of Tenant. In the event Tenant has elected to upgrade certain improvements from the Building Standard, Landlord shall, upon the need for replacement due to an insured loss, provide only the Building Standard, unless Tenant again elects to upgrade such improvements and pay any incremental costs related thereto, except to the extent that excess insurance proceeds, if received, are adequate to provide such upgrades, in addition to providing for basic repairs, reconstruction and restoration of the Premises, the Building and the Project.

24.8. Notwithstanding anything to the contrary contained in this Article, Landlord shall not have any obligation whatsoever to repair, reconstruct or restore the Premises if the damage resulting from any casualty covered under this Article occurs during the last twenty-four (24) months of the Term or any extension thereof, or to the extent that insurance proceeds are not available therefor.

24.9. Landlord's obligation, should it elect or be obligated to repair, reconstruct or restore, shall be limited to the Affected Areas, and shall be conditioned upon Landlord receiving any permits or authorizations required by Applicable Laws. Tenant shall, at its expense, replace or fully repair all of Tenant's personal property and any Alterations installed by Tenant existing at the time of such damage or destruction. If Affected Areas are to be repaired, reconstructed or restored in accordance with the foregoing, Landlord shall make available to Tenant any portion of insurance proceeds it receives that are allocable to the Alterations constructed by Tenant pursuant to this Lease; provided Tenant is not then in default under this Lease, and subject to the requirements of any Lender of Landlord.

24. I 0. This Article sets forth the terms and conditions upon which this Lease may terminate in the event of any damage or destruction. Accordingly, the parties hereby waive the provisions of California Civil Code Sections 1932(2) and 1933(4) (and any successor statutes) permitting the parties to terminate this Lease as a result of any damage or destruction.

25. Eminent Domain.

25.1. In the event (a) the whole of all Affected Areas or (b) such part thereof as shall substantially interfere with Tenant's use and occupancy of the Premises for the Permitted Use shall be taken for any public or quasi-public purpose by any lawful power or authority by exercise of the right of appropriation, condemnation or eminent domain, or sold to prevent such taking, Tenant or Landlord may terminate this Lease effective as of the date possession is required to be surrendered to such authority, except with regard to (y) items occurring prior to the taking and (z) provisions of this Lease that, by their express terms, survive the expiration or earlier termination hereof.

25.2. In the event of a partial taking of (a) the Building or the Project or (b) drives, walkways or parking areas serving the Building or the Project for any public or quasi-public purpose by any lawful power or authority by exercise of right of appropriation, condemnation, or eminent domain, or sold to prevent such taking, then, without regard to whether any portion of the Premises occupied by Tenant was so taken, Landlord may elect to terminate this Lease (except with regard to (a) items occurring prior to the taking and (b) provisions of this Lease that, by their express terms, survive the expiration or earlier termination hereof) as of such taking if such taking is, in Landlord's sole opinion, of a material nature such as to make it uneconomical to continue use of the unappropriated portion for purposes of renting office or laboratory space.

25.3. To the extent permitted under all applicable Loan Documents or otherwise consented to by any and all Lenders whose consent is required thereunder, Tenant shall be entitled to any award that is specifically awarded as compensation for (a) the taking of Tenant's personal property that was installed at Tenant's expense and (b) the costs of Tenant moving to a new location. Except as set forth in the previous sentence, any award for such taking shall be the property of Landlord.

25.4. If, upon any taking of the nature described in this Article, this Lease continues in effect, then Landlord shall promptly proceed to restore the Affected Areas to substantially their same condition prior to such partial taking. To the extent such restoration is infeasible, as determined by Landlord in its sole and absolute discretion, the Rent shall be decreased proportionately to reflect the loss of any portion of the Premises no longer available to Tenant. Notwithstanding anything to the contrary contained in this Article, Landlord shall not be required to restore the Affected Areas to the extent that Landlord is prohibited from doing so by any applicable Loan Document or any Lender whose consent is required thereunder withholds its consent.

25.5. This Article sets forth the terms and conditions upon which this Lease may terminate in the event of any damage or destruction. Accordingly, the parties hereby waive the provisions of California Code of Civil Procedure Section 1265.130 (and any successor statutes) permitting the parties to terminate this Lease as a result of any damage or destruction.

26. Sun-ender.

26.1. At least thirty (30) days prior to Tenant's surrender of possession of any part of the Premises, Tenant shall provide Landlord with a facility decommissioning and Hazardous Materials closure plan for the Premises ("Exit Survey") prepared by an independent third party state-certified professional with appropriate expertise, which Exit Survey must be reasonably acceptable to Landlord. The Exit Survey shall comply with the American National Standards Institute's Laboratory Decommissioning guidelines (ANSI/AIHA Z9.11-2008) or any successor standards published by ANSI or any successor organization (or, if ANSI and its successors no longer exist, a similar entity publishing similar standards). In addition, at least ten (10) days prior to Tenant's sun-ender of possession of any part of the Premises, Tenant shall (a) provide Landlord with written evidence of all appropriate governmental releases obtained by Tenant in accordance with Applicable Laws, including laws pertaining to the sun-ender of the Premises, (b) place Laboratory Equipment Decontamination Forms on all decommissioned equipment to assure safe occupancy by future users and (c) conduct a site inspection with Landlord. In addition, Tenant agrees to remain responsible after the sun-ender of the Premises for the remediation of any recognized environmental conditions set forth in the Exit Survey and comply with any recommendations set forth in the Exit Survey. Tenant's obligations under this Section shall survive the expiration or earlier termination of the Lease.

26.2. No sun-ender of possession of any part of the Premises shall release Tenant from any of its obligations hereunder, unless such sun-ender is accepted in writing by Landlord.

26.3. The voluntary or other sun-ender of this Lease by Tenant shall not effect a merger with Landlord's fee title or leasehold interest in the Premises, the Building, the Property or the Project, unless Landlord consents in writing, and shall, at Landlord's option, operate as an assignment to Landlord of any or all subleases.

26.4. The voluntary or other sun-ender of any ground or other underlying lease that now exists or may hereafter be executed affecting the Building or the Project, or a mutual cancellation thereof or of Landlord's interest therein by Landlord and its lessor shall not effect a merger with Landlord's fee title or leasehold interest in the Premises, the Building or the Property and shall, at the option of the successor to Landlord's interest in the Building or the Project, as applicable, operate as an assignment of this Lease.

27. Holding Over.

27.1. If, with Landlord's prior written consent, Tenant holds possession of all or any part of the Premises after the Term, Tenant shall become a tenant from month to month after the expiration or earlier termination of the Term, and in such case Tenant shall continue to pay (a) Base Rent in accordance with Article 7, as adjusted in accordance with Article 8, and (b) any amounts for which Tenant would otherwise be liable under this Lease if the Lease were still in effect, including payments for Tenant's Adjusted Share of Operating Expenses. Any such month-to-month tenancy shall be subject to every other term, covenant and agreement contained herein.

27.2. Notwithstanding the foregoing, if Tenant remains in possession of the Premises after the expiration or earlier termination of the Term without Landlord's prior written consent, (a) Tenant shall become a tenant at sufferance subject to the terms and conditions of this Lease, except that the monthly rent shall be equal to one hundred fifty percent (150%) of the Rent in effect during the last thirty (30) days of the Term, and (b) Tenant shall be liable to Landlord for any and all damages suffered by Landlord as a result of such holdover, including any lost rent or consequential, special and indirect damages (in each case, regardless of whether such damages are foreseeable).

27.3. Acceptance by Landlord of Rent after the expiration or earlier termination of the Term shall not result in an extension, renewal or reinstatement of this Lease.

27.4. The foregoing provisions of this Article are in addition to and do not affect Landlord's right of reentry or any other rights of Landlord hereunder or as otherwise provided by Applicable Laws.

27.5. The provisions of this Article shall survive the expiration or earlier termination of this Lease.

28. Indemnification and Exculpation.

28.1. Tenant agrees to Indemnify the Landlord Indemnitees from and against any and all Claims of any kind or nature, real or alleged, arising from (a) injury to or death of any person or damage to any property occurring within or about the Premises, the Building, the Property or the Project, arising directly or indirectly out of (i) the presence at or use or occupancy of the Premises or Project by a Tenant Patty or (ii) an act or omission on the part of any Tenant Patty, (b) a breach or default by Tenant in the performance of any of its obligations hereunder (including any Claim asserted by a Lender against any Landlord Indemnitees under any Loan Document as a direct result of such breach or default by Tenant) or (c) injury to or death of persons or damage to or loss of any property, real or alleged, arising from the serving of alcoholic beverages at the Premises or Project, including liability under any dram shop law, host liquor law or similar Applicable Law, except to the extent directly arising from Landlord's negligence or willful misconduct. Tenant's obligations under this Section shall not be affected, reduced or limited by any limitation on the amount or type of damages, compensation or benefits payable by or for Tenant under workers' compensation acts, disability benefit acts, employee benefit acts or similar legislation. Tenant's obligations under this Section shall survive the expiration or earlier termination of this Lease. Subject to Sections 23.6, 28.2 and 31.12 and any subrogation provisions contained in the Work Letter, Landlord agrees to Indemnify the Tenant Parties from and against any and all third party Claims arising from injury to or death of any person or damage to or loss of any physical property occurring within or about the Premises, the Building, the Property or the Project to the extent directly arising from Landlord's gross negligence or willful misconduct.

28.2. Notwithstanding anything in this Lease to the contrary, Landlord shall not be liable to Tenant for and Tenant assumes all risk of (a) damage or losses arising from fire, electrical malfunction, gas explosion or water damage of any type (including broken water lines, malfunctioning fire sprinkler systems, roof leaks or stoppages of lines), unless any such loss is due to Landlord's willful disregard of written notice by Tenant of need for a repair that Landlord is responsible to make for an unreasonable period of time, and (b) damage to personal property or scientific research, including loss of records kept by Tenant within the Premises (in each case, regardless of whether such damages are foreseeable). Tenant further waives any claim for injury to Tenant's business or loss of income relating to any such damage or destruction of personal property as described in this Section. Notwithstanding anything in the foregoing or this Lease to the contrary, except (x) as otherwise provided herein (including Section 27.2), (y) as may be provided by Applicable Laws or (z) in the event of Tenant's breach of Article 21 or Section 26.1, in no event shall Landlord or Tenant be liable to the other for any consequential, special or indirect damages arising from this Lease, including lost profits (provided that this Subsection 28.2(z) shall not limit Tenant's liability for Base Rent or Additional Rent pursuant to this Lease).

28.3. Landlord shall not be liable for any damages arising from any act, omission or neglect of any other tenant in the Building or the Project, or of any other third party.

28.4. Tenant acknowledges that security devices and services, if any, while intended to deter crime, may not in given instances prevent theft or other criminal acts. Landlord shall not be liable for injuries or losses arising from criminal acts of third parties, and Tenant assumes the risk that any security device or service may malfunction or otherwise be circumvented by a criminal. If Tenant desires protection against such criminal acts, then Tenant shall, at Tenant's sole cost and expense, obtain appropriate insurance coverage. Tenant's security programs and equipment for the Premises shall be coordinated with Landlord and subject to Landlord's reasonable approval.

28.5. The provisions of this Article shall survive the expiration or earlier termination of this Lease.

29. Assignment or Subletting.

29.1. Except as hereinafter expressly permitted, none of the following (each, a "Transfer"), either voluntarily or by operation of Applicable Laws, shall be directly or indirectly performed without Landlord's prior written consent, which shall not be unreasonably withheld, conditioned or delayed: (a) Tenant selling, hypothecating, assigning, pledging, encumbering or otherwise transferring this Lease or subletting the Premises or (b) a controlling interest in Tenant being sold, assigned or otherwise transferred (other than as a result of shares in Tenant being sold on a public stock exchange). For purposes of the preceding sentence, "control" means (a) owning (directly or indirectly) more than fifty percent (50%) of the stock or other equity interests of another person or (b) possessing, directly or indirectly, the power to direct or cause the direction of the management and policies of such person. Notwithstanding the foregoing, Tenant shall have the right to Transfer, without Landlord's prior written consent, Tenant's interest in this Lease or the Premises or any part thereof to any person that (i) acquires all or substantially all of the assets of Tenant, (ii) is a successor to Tenant by merger, consolidation or reorganization or

(iii) as of the date of determination and at all times thereafter directly, or indirectly through one or more intermediaries, controls, is controlled by or is under common control with Tenant (any person described in (i), (ii) or (iii), a "Tenant's Affiliate"); provided that Tenant shall notify Landlord in writing at least thirty (30) days prior to the effectiveness of such Transfer to Tenant's Affiliate (an "Exempt Transfer") and otherwise comply with the requirements of this Lease regarding such Transfer; and provided, further, that the person that will be the tenant under this Lease after the Exempt Transfer has a net worth (as of both the day immediately prior to and the day immediately after the Exempt Transfer) that is equal to or greater than the net worth (as of both the Execution Date and the date of the Exempt

Transfer) of the transferring Tenant. For purposes of the immediately preceding sentence, "control" requires both (a) owning (directly or indirectly) more than fifty percent (50%) of the stock or other equity interests of another person and (b) possessing, directly or indirectly, the power to direct or cause the direction of the management and policies of such person. In no event shall Tenant perform a Transfer to or with an entity that is a tenant at the Project or that is in discussions or negotiations with Landlord or an affiliate of Landlord to lease premises at the Project or a property owned by Landlord or an affiliate of Landlord.

29.2. In the event Tenant desires to effect a Transfer, then, at least thirty (30) but not more than ninety (90) days prior to the date when Tenant desires the Transfer to be effective (the "Transfer Date"), Tenant shall provide written notice to Landlord (the "Transfer Notice") containing information (including references) concerning the character of the proposed transferee, assignee or sublessee; the Transfer Date; the most recent unconsolidated financial statements of Tenant and of the proposed transferee, assignee or sublessee satisfying the requirements of Section 40.2 ("Required Financials"); any ownership or commercial relationship between Tenant and the proposed transferee, assignee or sublessee; copies of Hazardous Materials Documents for the proposed transferee, assignee or sublessee; and the consideration and all other material terms and conditions of the proposed Transfer, all in such detail as Landlord shall reasonably require.

29.3. Landlord, in determining whether consent should be given to a proposed Transfer, may give consideration to (a) the financial strength of Tenant and of such transferee, assignee or sublessee (notwithstanding Tenant remaining liable for Tenant's performance), (b) any change in use that such transferee, assignee or sublessee proposes to make in the use of the Premises and

(c) Landlord's desire to exercise its rights under Section 29.7 to cancel this Lease. In no event shall Landlord be deemed to be unreasonable for declining to consent to a Transfer if any applicable Loan Document prohibits such assignment or any Lender whose consent is required thereunder withholds its consent, or if the Transfer is to a transferee, assignee or sublessee of poor reputation, lacking financial qualifications or seeking a change in the Permitted Use, or jeopardizing directly or indirectly the status of Landlord or any of Landlord's affiliates as a Real Estate Investment Trust under the Internal Revenue Code of 1986 (as the same may be amended from time to time, the "Revenue Code"). Notwithstanding anything contained in this Lease to the contrary, (w) no Transfer shall be consummated on any basis such that the rental or other amounts to be paid by the occupant, assignee, manager or other transferee thereunder would be based, in whole or in part, on the income or profits derived by the business activities of such occupant, assignee, manager or other transferee; (x) Tenant shall not furnish or render any services to an occupant, assignee, manager or other transferee with respect to whom transfer consideration is required to be paid, or manage or operate the Premises or any capital additions so transferred, with respect to which transfer consideration is being paid; (y) Tenant shall not consummate a Transfer with any person in which Landlord owns an interest, directly or indirectly (by applying constructive ownership rules set forth in Section 856(d)(5) of the Revenue Code); and (z) Tenant shall not consummate a Transfer with any person or in any manner that could cause any portion of the amounts received by Landlord pursuant to this Lease or any sublease, license or other arrangement for the right to use, occupy or possess any portion of the Premises to fail to qualify as "rents from real property" within the meaning of Section 856(d) of the Revenue Code, or any similar or successor provision thereto or which could cause any other income of Landlord to fail to qualify as income described in Section 856(c)(2) of the Revenue Code. Notwithstanding anything in this Lease to the contrary, if (a) Tenant or any proposed transferee, assignee or sublessee of Tenant has been required by any prior landlord, Lender or Governmental Authority to take material remedial action in connection with Hazardous Materials contaminating a property if the contamination resulted from such party's action or omission or use of the property in question or (b) Tenant or any proposed transferee, assignee

or sublessee is subject to a material enforcement order issued by any Governmental Authority in connection with the use, disposal or storage of Hazardous Materials, then Landlord shall have the right to terminate this Lease in Landlord's sole and absolute discretion (with respect to any such matter involving Tenant), and it shall not be unreasonable for Landlord to withhold its consent to any proposed transfer, assignment or subletting (with respect to any such matter involving a proposed transferee, assignee or sublessee).

29.4. The following are conditions precedent to a Transfer or to Landlord considering a request by Tenant to a Transfer:

(a) Tenant shall remain fully liable under this Lease. Tenant agrees that it shall not be (and shall not be deemed to be) a guarantor or surety of this Lease, however, and waives its right to claim that is it is a guarantor or surety or to raise in any legal proceeding any guarantor or surety defenses permitted by this Lease or by Applicable Laws;

(b) If Tenant or the proposed transferee, assignee or sublessee does not or cannot deliver the Required Financials, then Landlord may elect to have either Tenant's ultimate parent company or the proposed transferee's, assignee's or sublessee's ultimate parent company provide a guaranty of the applicable entity's obligations under this Lease, in a form acceptable to Landlord, which guaranty shall be executed and delivered to Landlord by the applicable guarantor prior to the Transfer Date;

(c) In the case of an Exempt Transfer, Tenant shall provide Landlord with evidence reasonably satisfactory to Landlord that the Transfer qualifies as an Exempt Transfer;

(d) Tenant shall provide Landlord with evidence reasonably satisfactory to Landlord that the value of Landlord's interest under this Lease shall not be diminished or reduced by the proposed Transfer. Such evidence shall include evidence respecting the relevant business experience and financial responsibility and status of the proposed transferee, assignee or sublessee;

(e) Tenant shall reimburse Landlord for Landlord's actual costs and expenses, including reasonable attorneys' fees, charges and disbursements incurred in connection with the review, processing and documentation of such request;

(f) Except with respect to an Exempt Transfer, if Tenant's transfer of rights or sharing of the Premises provides for the receipt by, on behalf of or on account of Tenant of any consideration of any kind whatsoever (including a premium rental for a sublease or lump sum payment for an assignment, but excluding Tenant's reasonable costs in marketing and subleasing the Premises) in excess of the rental and other charges due to Landlord under this Lease, Tenant shall pay fifty percent (50%) of all of such excess to Landlord, after making deductions for any reasonable marketing expenses, tenant improvement funds expended by Tenant, alterations, cash concessions, brokerage commissions, attorneys' fees and free rent actually paid by Tenant. If such consideration consists of cash paid to Tenant, payment to Landlord shall be made upon receipt by Tenant of such cash payment;

(g) The proposed transferee, assignee or sublessee shall agree that, in the event Landlord gives such proposed transferee, assignee or sublessee notice that Tenant is in default under this Lease, such proposed transferee, assignee or sublessee shall thereafter make all payments otherwise due Tenant directly to Landlord, which payments shall be received by Landlord without

any liability being incurred by Landlord, except to credit such payment against those due by Tenant under this Lease, and any such proposed transferee, assignee or sublessee shall agree to attorn to Landlord or its successors and assigns should this Lease be terminated for any reason; provided, however, that in no event shall Landlord or its Lenders, successors or assigns be obligated to accept such attornment;

(h) Landlord's consent to any such Transfer shall be effected on Landlord's forms;

(i) Tenant shall not then be in default hereunder in any respect;

G) Such proposed transferee, assignee or sublessee's use of the Premises shall be the same as the Permitted Use;

(k) Landlord shall not be bound by any provision of any agreement pertaining to the Transfer, except for Landlord's written consent to the same;

(]) Tenant shall pay all transfer and other taxes (including interest and penalties) assessed or payable for any Transfer;

(m) Landlord's consent (or waiver of its rights) for any Transfer shall not waive Landlord's right to consent or refuse consent to any later Transfer;

(n) Tenant shall deliver to Landlord one executed copy of any and all written instruments evidencing or relating to the Transfer; and

(o) Tenant shall deliver to Landlord a list of Hazardous Materials (as defined below), certified by the proposed transferee, assignee or sublessee to be true and correct, that the proposed transferee, assignee or sublessee intends to use or store in the Premises. Additionally, Tenant shall deliver to Landlord, on or before the date any proposed transferee, assignee or sublessee takes occupancy of the Premises, all of the items relating to Hazardous Materials of such proposed transferee, assignee or sublessee as described in Section 21.2.

29.5. Any Transfer that is not in compliance with the provisions of this Article or with respect to which Tenant does not fulfill its obligations pursuant to this Article shall be void and shall, at the option of Landlord, terminate this Lease.

29.6. Notwithstanding any Transfer, Tenant shall remain fully and primarily liable for the payment of all Rent and other sums due or to become due hereunder, and for the full performance of all other terms, conditions and covenants to be kept and performed by Tenant. The acceptance of Rent or any other sum due hereunder, or the acceptance of performance of any other term, covenant or condition thereof, from any person or entity other than Tenant shall not be deemed a waiver of any of the provisions of this Lease or a consent to any Transfer.

29.7. If Tenant delivers to Landlord a Transfer Notice indicating a desire to assign (or otherwise transfer) this Lease or sublease more than fifty percent (50%) of the Premises to a proposed transferee, assignee or sublessee other than pursuant to an Exempt Transfer, then Landlord shall have the option, exercisable by giving notice to Tenant at any time within thirty (30) days after Landlord's receipt of such Transfer Notice, to terminate this Lease as of the date specified in the Transfer Notice as the Transfer Date, except for those provisions that, by their express terms, survive the expiration or earlier termination hereof. If Landlord exercises such option, then Tenant shall have the right to withdraw such Transfer Notice by delivering to Landlord written notice of such election within five (5) days after Landlord's delivery of notice electing to exercise Landlord's option to terminate this Lease. In the event Tenant withdraws the Transfer Notice as provided in this Section, this Lease shall continue in full force and effect. No failure of Landlord to exercise its option to terminate this Lease shall be deemed to be Landlord's consent to a proposed Transfer.

29.8. If Tenant sublets the Premises or any portion thereof, Tenant hereby immediately and irrevocably assigns to Landlord, as security for Tenant's obligations under this Lease, all rent from any such subletting, and appoints Landlord as assignee and attorney-in-fact for Tenant, and Landlord (or a receiver for Tenant appointed on Landlord's application) may collect such rent and apply it toward Tenant's obligations under this Lease; provided that, until the occurrence of a Default (as defined below) by Tenant, Tenant shall have the right to collect such rent.

29.9. In the event that Tenant enters into a sublease for the entire Premises in accordance with this Article that expires within two (2) days of the Term Expiration Date, the term expiration date of such sublease shall, notwithstanding anything in this Lease, the sublease or any consent to the sublease to the contrary, be deemed to be the date that is two (2) days prior to the Term Expiration Date.

30. Subordination and Attornment.

30.1. This Lease shall be subject and subordinate to the lien of any mortgage, deed of trust, or lease in which Landlord is tenant now or hereafter in force against the Building or the Project and to all advances made or hereafter to be made upon the security thereof without the necessity of the execution and delivery of any further instruments on the part of Tenant to effectuate such subordination.

30.2. Notwithstanding the foregoing, Tenant shall execute and deliver upon demand such further instrument or instruments evidencing such subordination of this Lease to the lien of any such mortgage or mortgages or deeds of trust or lease in which Landlord is tenant as may be required by Landlord. If any Lender so elects, however, this Lease shall be deemed prior in lien to any such lease, mortgage, or deed of trust upon or including the Premises regardless of date and Tenant shall execute a statement in writing to such effect at Landlord's request. If Tenant fails to execute any document required from Tenant under this Section within ten (I 0) days after written request therefor, Tenant hereby constitutes and appoints Landlord or its special attorney-in-fact to execute and deliver any such document or documents in the name of Tenant. Such power is coupled with an interest and is irrevocable. For the avoidance of doubt, "Lenders" shall also include historic tax credit investors and new market tax credit investors.

30.3. Upon written request of Landlord and opportunity for Tenant to review, Tenant agrees to execute any Lease amendments not materially altering the terms of this Lease, if required by a Lender incident to the financing of the real property of which the Premises constitute a part.

30.4. In the event any proceedings are brought for foreclosure, or in the event of the exercise of the power of sale under any mortgage or deed of trust made by Landlord covering the Premises, Tenant shall at the election of the purchaser at such foreclosure or sale attorn to the purchaser upon any such foreclosure or sale and recognize such purchaser as Landlord under this Lease.

31. Defaults and Remedies.

31.1. Late payment by Tenant to Landlord of Rent and other sums due shall cause Landlord to incur costs not contemplated by this Lease, the exact amount of which shall be extremely difficult and impracticable to ascertain. Such costs include processing and accounting charges and late charges that may be imposed on Landlord by the terms of any mortgage or trust deed covering the Premises. Therefore, if any installment of Rent due from Tenant is not received by Landlord within three (3) days after the date such payment is due, Tenant shall pay to Landlord

(a) an additional sum of six percent (6%) of the overdue Rent as a late charge plus (b) interest at an annual rate (the "Default Rate") equal to the lesser of (a) twelve percent (12%) and (b) the highest rate permitted by Applicable Laws. The parties agree that this late charge represents a fair and reasonable estimate of the costs that Landlord shall incur by reason of late payment by Tenant and shall be payable as Additional Rent to Landlord due with the next installment of Rent or within five (5) business days after Landlord's demand, whichever is earlier. Landlord's acceptance of any Additional Rent (including a late charge or any other amount hereunder) shall not be deemed an extension of the date that Rent is due or prevent Landlord from pursuing any other rights or remedies under this Lease, at law or in equity.

31.2. No payment by Tenant or receipt by Landlord of a lesser amount than the Rent payment herein stipulated shall be deemed to be other than on account of the Rent, nor shall any endorsement or statement on any check or any letter accompanying any check or payment as Rent be deemed an accord and satisfaction, and Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such Rent or pursue any other remedy provided in this Lease or in equity or at law. If a dispute shall arise as to any amount or sum of money to be paid by Tenant to Landlord hereunder, Tenant shall have the right to make payment "under protest," such payment shall not be regarded as a voluntary payment, and there shall survive the right on the part of Tenant to institute suit for recovery of the payment paid under protest.

31.3. If Tenant fails to pay any sum of money required to be paid by it hereunder or perform any other act on its part to be performed hereunder, in each case within the applicable cure period (if any) described in Section 31.4, then Landlord may (but shall not be obligated to), without waiving or releasing Tenant from any obligations of Tenant, make such payment or perform such act; provided that such failure by Tenant unreasonably interfered with the use of the Building or the Project by any other tenant or with the efficient operation of the Building or the Project, or resulted or could have resulted in a violation of Applicable Laws or the cancellation of an insurance policy maintained by Landlord. Notwithstanding the foregoing, in the event of an emergency, Landlord shall have the right to enter the Premises and act in accordance with its rights as provided elsewhere in this Lease. In addition to the late charge described in Section 31.1, Tenant shall pay to Landlord as Additional Rent all sums so paid or incurred by Landlord, together with interest at the Default Rate, computed from the date such sums were paid or incurred.

31.4. The occurrence of any one or more of the following events shall constitute a "Default" hereunder by Tenant:

(a) Tenant abandons or vacates the Premises;

(b) Tenant fails to make any payment of Rent, as and when due, or to satisfy its obligations under Article 19, where such failure shall continue for a period of three (3) days after written notice thereof from Landlord to Tenant;

(c) Tenant fails to observe or perform any obligation or covenant contained herein (other than described in Sections 31.4(a) and 31.4(b)) to be performed by Tenant, where such failure continues for a period of twenty (20) days after written notice thereof from Landlord to Tenant; provided that, if the nature of Tenant's default is such that it reasonably requires more than twenty (20) days to cure, Tenant shall not be deemed to be in Default if Tenant commences such cure within such twenty (20) day period and thereafter diligently prosecutes the same to completion; and provided, further, that such cure is completed no later than sixty (60) days after Tenant's receipt of written notice from Landlord;

(d) Tenant makes an assignment for the benefit of creditors;

(e) A receiver, trustee or custodian is appointed to or does take title, possession or control of all or substantially all of Tenant's assets;

(f) Tenant files a voluntary petition under the United States Bankruptcy Code or any successor statute (as the same may be amended from time to time, the "Bankruptcy Code") or an order for relief is entered against Tenant pursuant to a voluntary or involuntary proceeding commenced under any chapter of the Bankruptcy Code;

(g) Any involuntary petition is filed against Tenant under any chapter of the Bankruptcy Code and is not dismissed within one hundred twenty (120) days;

(h) Tenant fails to deliver an estoppel certificate in accordance with Article 20; or

(i) Tenant's interest in this Lease is attached, executed upon or otherwise judicially seized and such action is not released within one hundred twenty (120) days of the action.

Notices given under this Section shall specify the alleged default and shall demand that Tenant perform the provisions of this Lease or pay the Rent that is in arrears, as the case may be, within the applicable period of time, or quit the Premises. No such notice shall be deemed a forfeiture or a termination of this Lease unless Landlord elects otherwise in such notice.

31.5. In the event of a Default by Tenant, and at any time thereafter, with or without notice or demand and without limiting Landlord in the exercise of any right or remedy that Landlord may have, Landlord has the right to do any or all of the following:

(a) Halt any Tenant Improvements and Alterations and order Tenant's contractors, subcontractors, consultants, designers and material suppliers to stop work;

(b) Terminate Tenant's right to possession of the Premises by written notice to Tenant or by any lawful means, in which case Tenant shall immediately surrender possession of the Premises to Landlord. In such event, Landlord shall have the immediate right to re-enter and remove all persons and property, and such property may be removed and stored in a public warehouse or elsewhere at the cost and for the account of Tenant, all without service of notice or resort to legal process and without being deemed guilty of trespass or becoming liable for any loss or damage that may be occasioned thereby; and

(c) Terminate this Lease, in which event Tenant shall immediately surrender possession of the Premises to Landlord. In such event, Landlord shall have the immediate right to re-enter and remove all persons and property, and such property may be removed and stored in a public warehouse or elsewhere at the cost and for the account of Tenant, all without service of notice or resort to legal process and without being deemed guilty of trespass or becoming liable for

any loss or damage that may be occasioned thereby. In the event that Landlord shall elect to so terminate this Lease, then Landlord shall be entitled to recover from Tenant all damages incurred by Landlord by reason of Tenant's default, including:

(i) The sum of:

A. The worth at the time of award of any unpaid Rent that had accrued at the time of such termination; plus

B. The worth at the time of award of the amount by which the unpaid Rent that would have accrued during the period commencing with termination of the Lease and ending at the time of award exceeds that portion of the loss of Landlord's rental income from the Premises that Tenant proves to Landlord's reasonable satisfaction could have been reasonably avoided; plus

C. The worth at the time of award of the amount by which the unpaid Rent for the balance of the Term after the time of award exceeds that portion of the loss of Landlord's rental income from the Premises that Tenant proves to Landlord's reasonable satisfaction could have been reasonably avoided; plus

D. Any other amount necessary to compensate Landlord for all the detriment arising from Tenant's failure to perform its obligations under this Lease or that in the ordinary course of things would be likely to result therefrom, including the cost of restoring the Premises to the condition required under the terms of this Lease, including any rent payments not otherwise chargeable to Tenant (e.g., during any "free" rent period or rent holiday); plus

E. At Landlord's election, such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by Applicable Laws; or

(ii) At Landlord's election, as minimum liquidated damages in addition to any (A) amounts paid or payable to Landlord pursuant to Section 31.5(c)(i)(A) prior to such election and (B) costs of restoring the Premises to the condition required under the terms of this Lease, an amount (the "Election Amount") equal to either (Y) the positive difference (if any, and measured at the time of such termination) between (1) the then-present value of the total Rent and other benefits that would have accrued to Landlord under this Lease for the remainder of the Term if Tenant had fully complied with the Lease minus (2) the then-present cash rental value of the Premises as determined by Landlord for what would be the then-unexpired Term if the Lease remained in effect, computed using the discount rate of the Federal Reserve Bank of San Francisco at the time of the award plus one (1) percentage point (the "Discount Rate") or (Z) twelve (12) months (or such lesser number of months as may then be remaining in the Term) of Base Rent and Additional Rent at the rate last payable by Tenant pursuant to this Lease, in either case as Landlord specifies in such election. Landlord and Tenant agree that the Election Amount represents a reasonable forecast of the minimum damages expected to occur in the event of a breach, taking into account the uncertainty, time and cost of determining elements relevant to actual damages, such as fair market rent, time and costs that may be required to re-lease the Premises, and other factors; and that the Election Amount is not a penalty.

As used in Sections 31.5(c)(i)(A) and _(fil, “worth at the time of award” shall be computed by allowing interest at the Default Rate. As used in Section 31.5(c)(i)(C), the “worth at the time of the award” shall be computed by taking the present value of such amount, using the Discount Rate.

31.6. In addition to any other remedies available to Landlord at law or in equity and under this Lease, Landlord shall have the remedy described in California Civil Code Section 1951.4 and may continue this Lease in effect after Tenant’s Default or abandonment and recover Rent as it becomes due, provided Tenant has the right to sublet or assign, subject only to reasonable limitations. In addition, Landlord shall not be liable in any way whatsoever for its failure or refusal to relet the Premises. For purposes of this Section, the following acts by Landlord will not constitute the termination of Tenant’s right to possession of the Premises:

(a) Acts of maintenance or preservation or efforts to relet the Premises, including alterations, remodeling, redecorating, repairs, replacements or painting as Landlord shall consider advisable for the purpose of reletting the Premises or any part thereof; or

(b) The appointment of a receiver upon the initiative of Landlord to protect Landlord’s interest under this Lease or in the Premises.

Notwithstanding the foregoing, in the event of a Default by Tenant, Landlord may elect at any time to terminate this Lease and to recover damages to which Landlord is entitled.

31.7. If Landlord does not elect to terminate this Lease as provided in Section 31.5, then Landlord may, from time to time, recover all Rent as it becomes due under this Lease. At any time thereafter, Landlord may elect to terminate this Lease and to recover damages to which Landlord is entitled.

31.8. In the event Landlord elects to terminate this Lease and relet the Premises, Landlord may execute any new lease in its own name. Tenant hereunder shall have no right or authority whatsoever to collect any Rent from such tenant. The proceeds of any such reletting shall be applied as follows:

(a) First, to the payment of any indebtedness other than Rent due hereunder from Tenant to Landlord, including storage charges or brokerage commissions owing from Tenant to Landlord as the result of such reletting;

(b) Second, to the payment of the costs and expenses of reletting the Premises, including (i) alterations and repairs that Landlord deems reasonably necessary and advisable and (ii) reasonable attorneys’ fees, charges and disbursements incurred by Landlord in connection with the retaking of the Premises and such reletting;

(c) Third, to the payment of Rent and other charges due and unpaid hereunder; and

(d) Fourth, to the payment of future Rent and other damages payable by Tenant under this Lease.

(e) Fourth, to the payment of future Rent and other damages payable by Tenant under this Lease.

31.9. All of Landlord's rights, options and remedies hereunder shall be construed and held to be nonexclusive and cumulative. Landlord shall have the right to pursue any one or all of such remedies, or any other remedy or relief that may be provided by Applicable Laws, whether or not stated in this Lease. No waiver of any default of Tenant hereunder shall be implied from any acceptance by Landlord of any Rent or other payments due hereunder or any omission by Landlord to take any action on account of such default if such default persists or is repeated, and no express waiver shall affect defaults other than as specified in such waiver. Notwithstanding any provision of this Lease to the contrary, in no event shall Landlord be required to mitigate its damages with respect to any default by Tenant, except as required by Applicable Laws. Any such obligation imposed by Applicable Laws upon Landlord to relet the Premises after any termination of this Lease shall be subject to the reasonable requirements of Landlord to (a) lease to high quality tenants on such terms as Landlord may from time to time deem appropriate in its discretion and (b) develop the Project in a harmonious manner with a mix of uses, tenants, floor areas, terms of tenancies, etc., as determined by Landlord. Landlord shall not be obligated to relet the Premises to (y) any Tenant's Affiliate or (z) any party (i) unacceptable to a Lender, (ii) that requires Landlord to make improvements to or re-demise the Premises, (iii) that desires to change the Permitted Use, (iv) that desires to lease the Premises for more or less than the remaining Term or (v) to whom Landlord or an affiliate of Landlord may desire to lease other available space in the Project or at another property owned by Landlord or an affiliate of Landlord.

31.10. Landlord's termination of(a) this Lease or (b) Tenant's right to possession of the Premises shall not relieve Tenant of any liability to Landlord that has previously accrued or that shall arise based upon events that occurred prior to the later to occur of (y) the date of Lease termination and (z) the date Tenant surrenders possession of the Premises.

31.11. To the extent permitted by Applicable Laws, Tenant waives any and all rights of redemption granted by or under any present or future Applicable Laws if Tenant is evicted or dispossessed for any cause, or if Landlord obtains possession of the Premises due to Tenant's default hereunder or otherwise.

31.12. Landlord shall not be in default or liable for damages under this Lease unless Landlord fails to perform obligations required of Landlord within a reasonable time, but in no event shall such failure continue for more than thirty (30) days after written notice from Tenant specifying the nature of Landlord's failure; provided, however, that if the nature of Landlord's obligation is such that more than thirty (30) days are required for its performance, then Landlord shall not be in default if Landlord commences performance within such thirty (30) day period and thereafter diligently prosecutes the same to completion. In no event shall Tenant have the right to terminate or cancel this Lease or to withhold or abate rent or to set off any Claims against Rent as a result of any default or breach by Landlord of any of its covenants, obligations, representations, warranties or promises hereunder, except as may otherwise be expressly set forth in this Lease.

31.13. In the event of any default by Landlord, Tenant shall give notice by registered or certified mail to any (a) beneficiary of a deed of trust or (b) mortgagee under a mortgage covering the Premises, the Building or the Project and to any landlord of any lease of land upon or within which the Premises, the Building or the Project is located, and shall offer such beneficiary,

mortgagee or landlord a reasonable opportunity to cure the default, including time to obtain possession of the Building or the Project by power of sale or a judicial action if such should prove necessary to effect a cure; provided that Landlord shall furnish to Tenant in writing, upon written request by Tenant, the names and addresses of all such persons who are to receive such notices.

32. Bankruptcy . In the event a debtor, trustee or debtor in possession under the Bankruptcy Code, or another person with similar rights, duties and powers under any other Applicable Laws, proposes to cure any default under this Lease or to assume or assign this Lease and is obliged to provide adequate assurance to Landlord that (a) a default shall be cured, (b) Landlord shall be compensated for its damages arising from any breach of this Lease and (c) future performance of Tenant's obligations under this Lease shall occur, then such adequate assurances shall include any or all of the following, as designated by Landlord in its sole and absolute discretion:

32.1. Those acts specified in the Bankruptcy Code or other Applicable Laws as included within the meaning of "adequate assurance," even if this Lease does not concern a shopping center or other facility described in such Applicable Laws;

32.2. A prompt cash payment to compensate Landlord for any monetary defaults or actual damages arising directly from a breach of this Lease;

32.3. A cash deposit in an amount at least equal to the then-current amount of the Security Deposit; or

32.4. The assumption or assignment of all of Tenant's interest and obligations under this Lease.

33. Brokers.

33.1. Tenant represents and warrants that it has had no dealings with any real estate broker or agent in connection with the negotiation of this Lease other than Jones Lang LaSalle Brokerage, Inc., a Texas corporation ("Broker"), and that it knows of no other real estate broker or agent that is or might be entitled to a commission in connection with this Lease. Landlord shall compensate Broker in relation to this Lease pursuant to a separate agreement between Landlord and Broker.

33.2. Tenant represents and warrants that no broker or agent has made any representation or warranty relied upon by Tenant in Tenant's decision to enter into this Lease, other than as contained in this Lease.

33.3. Tenant acknowledges and agrees that the employment of brokers by Landlord is for the purpose of solicitation of offers of leases from prospective tenants and that no authority is granted to any broker to furnish any representation (written or oral) or warranty from Landlord unless expressly contained within this Lease. Landlord is executing this Lease in reliance upon Tenant's representations, warranties and agreements contained within Sections 33.1 and 33.2.

33.4. Tenant agrees to Indemnify the Landlord Indemnitees from any and all cost or liability for compensation claimed by any broker or agent, other than Broker, employed or engaged by Tenant or claiming to have been employed or engaged by Tenant.

34. Definition of Landlord. With regard to obligations imposed upon Landlord pursuant to this Lease, the term "Landlord," as used in this Lease, shall refer only to Landlord or Landlord's then-current successor-in-interest. In the event of any transfer, assignment or conveyance of Landlord's interest in this Lease or in Landlord's fee title to or leasehold interest in the Property, as applicable, Landlord herein named (and in case of any subsequent transfers or conveyances, the subsequent Landlord) shall be automatically freed and relieved, from and after the date of such transfer, assignment or conveyance, from all liability for the performance of any covenants or obligations contained in this Lease thereafter to be performed by Landlord and, without further agreement, the transferee, assignee or conveyee of Landlord's in this Lease or in Landlord's fee title to or leasehold interest in the Property, as applicable, shall be deemed to have assumed and agreed to observe and perform any and all covenants and obligations of Landlord hereunder during the tenure of its interest in the Lease or the Property. Landlord or any subsequent Landlord may transfer its interest in the Premises or this Lease without Tenant's consent.

35. Limitation of Landlord's Liability.

35.1. If Landlord is in default under this Lease and, as a consequence, Tenant recovers a monetary judgment against Landlord, the judgment shall be satisfied only out of (a) the proceeds of sale received on execution of the judgment and levy against the right, title and interest of Landlord in the Building and the Project, (b) rent or other income from such real property receivable by Landlord or (c) the consideration received by Landlord from the sale, financing, refinancing or other disposition of all or any part of Landlord's right, title or interest in the Building or the Project.

35.2. Neither Landlord nor any of its affiliates, nor any of their respective partners, shareholders, directors, officers, employees, members or agents shall be personally liable for Landlord's obligations or any deficiency under this Lease, and service of process shall not be made against any shareholder, director, officer, employee or agent of Landlord or any of Landlord's affiliates. No partner, shareholder, director, officer, employee, member or agent of Landlord or any of its affiliates shall be sued or named as a party in any suit or action, and service of process shall not be made against any partner or member of Landlord except as may be necessary to secure jurisdiction of the partnership, joint venture or limited liability company, as applicable. No partner, shareholder, director, officer, employee, member or agent of Landlord or any of its affiliates shall be required to answer or otherwise plead to any service of process, and no judgment shall be taken or writ of execution levied against any partner, shareholder, director, officer, employee, member or agent of Landlord or any of its affiliates.

35.3. Each of the covenants and agreements of this Article shall be applicable to any covenant or agreement either expressly contained in this Lease or imposed by Applicable Laws and shall survive the expiration or earlier termination of this Lease.

36. Joint and Several Obligations. If more than one person or entity executes this Lease as Tenant, then:

36.1. Each of them is jointly and severally liable for the keeping, observing and performing of all of the terms, covenants, conditions, provisions and agreements of this Lease to be kept, observed or performed by Tenant, and such terms, covenants, conditions, provisions and agreements shall be binding with the same force and effect upon each and all of the persons executing this Agreement as Tenant; and

36.2. The term "Tenant," as used in this Lease, shall mean and include each of them, jointly and severally. The act of, notice from, notice to, refund to, or signature of any one or more of them with respect to the tenancy under this Lease, including any renewal, extension, expiration, termination or modification of this Lease, shall be binding upon each and all of the persons executing this Lease as Tenant with the same force and effect as if each and all of them had so acted, so given or received such notice or refund, or so signed.

37. Representations. Tenant guarantees, warrants and represents that (a) Tenant is duly incorporated or otherwise established or formed and validly existing under the laws of its state of incorporation, establishment or formation, (b) Tenant has and is duly qualified to do business in the state in which the Property is located, (c) Tenant has full corporate, partnership, trust, association or other appropriate power and authority to enter into this Lease and to perform all Tenant's obligations hereunder, (d) each person (and all of the persons if more than one signs) signing this Lease on behalf of Tenant is duly and validly authorized to do so and (e) neither (i) the execution, delivery or performance of this Lease nor (ii) the consummation of the transactions contemplated hereby will violate or conflict with any provision of documents or instruments under which Tenant is constituted or to which Tenant is a party. In addition, Tenant guarantees, warrants and represents that none of (x) it, (y) its affiliates or partners nor (z) to the best of its knowledge, its members, shareholders or other equity owners or any of their respective employees, officers, directors, representatives or agents is a person or entity with whom U.S. persons or entities are restricted from doing business under regulations of the Office of Foreign Asset Control ("OFAC") of the Department of the Treasury (including those named on OFAC's Specially Designated and Blocked Persons List) or under any statute, executive order (including the September 24, 2001, Executive Order Blocking Property and Prohibiting Transactions with Persons Who Commit, Threaten to Commit, or Support Terrorism) or other similar governmental action.

38. Confidentiality. Tenant shall keep the terms and conditions of this Lease and any information provided to Tenant or its employees, agents or contractors pursuant to Article 9 confidential and shall not (a) disclose to any third party any terms or conditions of this Lease or any other Lease-related document (including subleases, assignments, work letters, construction contracts, letters of credit, subordination agreements, non-disturbance agreements, brokerage agreements or estoppels) or the contents of any documents, reports, surveys or evaluations related to the Project or any portion thereof or (b) provide to any third party an original or copy of this Lease (or any Lease-related document or other document referenced in Subsection 38(a)). Landlord shall not release to any third party any non-public financial information or non-public information about Tenant's ownership structure that Tenant gives Landlord. Notwithstanding the foregoing, confidential information under this Section may be released by Landlord or Tenant under the following circumstances: (x) if required by Applicable Laws or in any judicial proceeding: provided that the releasing party has given the other party reasonable notice of such requirement, if feasible, (y) to a party's attorneys, accountants, brokers, lenders, potential lenders, investors, potential investors and other bona fide consultants or advisers (with respect to this Lease only): provided such third parties agree to be bound by this Section or (z) to bona fide prospective assignees or subtenants of this Lease: provided they agree in writing to be bound by this Section.

39. Notices. Except as otherwise stated in this Lease, any notice, consent, demand, invoice, statement or other communication required or permitted to be given hereunder shall be in writing and shall be given by (a) personal delivery, (b) overnight delivery with a reputable

international overnight delivery service, such as FedEx, or (c) facsimile or email transmission, so long as such transmission is followed within one (1) business day by delivery utilizing one of the methods described in Subsection 39(a) or {hl. Any such notice, consent, demand, invoice, statement or other communication shall be deemed delivered (x) upon receipt, if given in accordance with Subsection 39(a); (y) one (I) business day after deposit with a reputable international overnight delivery service, if given in accordance with Subsection 39(b); or (z) upon transmission, if given in accordance with Subsection 39(c). Except as otherwise stated in this Lease, any notice, consent, demand, invoice, statement or other communication required or permitted to be given pursuant to this Lease shall be addressed to Tenant at the Premises, or to Landlord or Tenant at the addresses shown in Sections 2.9 and 2.10 or 2.11, respectively. Either patty may, by notice to the other given pursuant to this Section, specify additional or different addresses for notice purposes.

40. Miscellaneous.

40. I. Landlord reserves the right to change the name of the Building or the Project in its sole discretion.

40.2. To induce Landlord to enter into this Lease, Tenant agrees that it shall furnish to Landlord, from time to time (but no more than one (1) time per calendar year (unless Tenant is in default of this Lease, in which event no such limitation shall apply); provided that, such one (1)-time limitation is in addition to the annual financial statements required without any request described in the immediately succeeding sentence), within ten (10) business days after receipt of Landlord's written request, the most recent year-end unconsolidated financial statements reflecting Tenant's current financial condition audited by a nationally recognized accounting firm. Tenant shall, within ninety (90) days after the end of Tenant's financial year, furnish Landlord with a certified copy of Tenant's year-end unconsolidated financial statements for the previous year audited by a nationally recognized accounting firm. Tenant represents and warrants that all financial statements, records and information furnished by Tenant to Landlord in connection with this Lease are true, correct and complete in all respects. If audited financials are not otherwise prepared, unaudited financials complying with generally accepted accounting principles and certified by the chief financial officer of Tenant as true, correct and complete in all respects shall suffice for purposes of this Section. The provisions of this Section shall not apply at any time while Tenant is a corporation whose shares are traded on any nationally recognized stock exchange.

40.3. Submission of this instrument for examination or signature by Tenant does not constitute a reservation of or option for a lease, and shall not be effective as a lease or otherwise until execution by and delivery to both Landlord and Tenant.

40.4. The terms of this Lease are intended by the parties as a final, complete and exclusive expression of their agreement with respect to the terms that are included herein, and may not be contradicted or supplemented by evidence of any other prior or contemporaneous agreement.

40.5. Landlord may, but shall not be obligated to, record a short form or memorandum hereof without Tenant's consent. Within ten (10) days after receipt of written request from Landlord, Tenant shall execute a termination of any short form or memorandum of lease recorded with respect hereto. Tenant shall be responsible for the cost of recording any short form or memorandum of this Lease, including any transfer or other taxes incurred in connection with such recordation. Neither party shall record this Lease.

40.6. Where applicable in this Lease, the singular includes the plural and the masculine or neuter includes the masculine, feminine and neuter. The words "include," "includes," "included" and "including" mean "'include,' etc., without limitation." The word "shall" is mandatory and the word "may" is permissive. The word "business day" means a calendar day other than any national or local holiday on which federal government agencies in the County of San Diego are closed for business, or any weekend. The section headings of this Lease are not a part of this Lease and shall have no effect upon the construction or interpretation of any part of this Lease. Landlord and Tenant have each participated in the drafting and negotiation of this Lease, and the language in all parts of this Lease shall be in all cases construed as a whole according to its fair meaning and not strictly for or against either Landlord or Tenant.

40.7. Except as otherwise expressly set forth in this Lease, each party shall pay its own costs and expenses incurred in connection with this Lease and such party's performance under this Lease; provided that, if either party commences an action, proceeding, demand, claim, action, cause of action or suit against the other party arising from or in connection with this Lease, then the substantially prevailing party shall be reimbursed by the other party for all reasonable costs and expenses, including reasonable attorneys' fees and expenses, incurred by the substantially prevailing party in such action, proceeding, demand, claim, action, cause of action or suit, and in any appeal in connection therewith (regardless of whether the applicable action, proceeding, demand, claim, action, cause of action, suit or appeal is voluntarily withdrawn or dismissed). In addition, Landlord shall, upon demand, be entitled to all reasonable attorneys' fees and all other reasonable costs incurred in the preparation and service of any notice or demand hereunder, regardless of whether a legal action is subsequently commenced, or incurred in connection with any contested matter or other proceeding in bankruptcy court concerning this Lease.

40.8. Time is of the essence with respect to the performance of every provision of this Lease.

40.9. Each provision of this Lease performable by Tenant shall be deemed both a covenant and a condition.

40.10. Notwithstanding anything to the contrary contained in this Lease, Tenant’s obligations under this Lease are independent and shall not be conditioned upon performance by Landlord.

40.11. Whenever consent or approval of either party is required, that party shall not unreasonably withhold, condition or delay such consent or approval, except as may be expressly set forth to the contrary.

40.12. Any provision of this Lease that shall prove to be invalid, void or illegal shall in no way affect, impair or invalidate any other provision hereof, and all other provisions of this Lease shall remain in full force and effect and shall be interpreted as if the invalid, void or illegal provision did not exist.

40.13. Each of the covenants, conditions and agreements herein contained shall inure to the benefit of and shall apply to and be binding upon the parties hereto and their respective heirs; legatees; devisees; executors; administrators; and permitted successors and assigns. This Lease is for the sole benefit of the parties and their respective heirs, legatees, devisees, executors, administrators and permitted successors and assigns, and nothing in this Lease shall give or be construed to give any other person or entity any legal or equitable rights. Nothing in this Section shall in any way alter the provisions of this Lease restricting assignment or subletting.

40.14. This Lease shall be governed by, construed and enforced in accordance with the laws of the state in which the Premises are located, without regard to such state’s conflict of law principles.

40.15. Tenant guarantees, wan-ants and represents that the individual or individuals signing this Lease have the power, authority and legal capacity to sign this Lease on behalf of and to bind all entities, corporations, partnerships, limited liability companies, joint venturers or other organizations and entities on whose behalf such individual or individuals have signed.

40.16. This Lease may be executed in one or more counterparts, each of which, when taken together, shall constitute one and the same document.

40.17. No provision of this Lease may be modified, amended or supplemented except by an agreement in writing signed by Landlord and Tenant.

40.18. No waiver of any term, covenant or condition of this Lease shall be binding upon Landlord unless executed in writing by Landlord. The waiver by Landlord of any breach or default of any term, covenant or condition contained in this Lease shall not be deemed to be a waiver of any preceding or subsequent breach or default of such term, covenant or condition or any other term, covenant or condition of this Lease.

40.19. To the extent permitted by Applicable Laws, the parties waive trial by jury in any action, proceeding or counterclaim brought by the other party hereto related to matters arising from or in any way connected with this Lease; the relationship between Landlord and Tenant; Tenant’s use or occupancy of the Premises; or any claim of injury or damage related to this Lease or the Premises.

41. [Intentionally Omitted.]

42. Option to Extend Tenn. Tenant shall have one (I) option ("Option") to extend the Term by five (5) years as to the entire Premises (and no less than the entire Premises) upon the following terms and conditions. Any extension of the Term pursuant to the Option shall be on all the same terms and conditions as this Lease, except as follows:

42.1. Base Rent at the commencement of the Option term shall equal the then-current fair market value for comparable office and laboratory space in the Torrey Pines submarket of comparable age, quality, level of finish and proximity to amenities and public transit, and containing the systems and improvements present in the Premises as of the date that Tenant gives Landlord written notice of Tenant's election to exercise the Option ("FMV"), and shall be further increased on each annual anniversary of the Option term commencement date by three percent (3%). Tenant may, no more than twelve (12) months prior to the date the Term is then scheduled to expire, request Landlord's estimate of the FMV for the Option term. Landlord shall, within fifteen (I 5) days after receipt of such request, give Tenant a written proposal of such FMV. If Tenant gives written notice to exercise the Option, such notice shall specify whether Tenant accepts Landlord's proposed estimate of FMV. If Tenant does not accept the FMV, then the parties shall endeavor to agree upon the FMV, taking into account all relevant factors, including

(a) the size of the Premises, (b) the length of the Option term, (c) rent in comparable buildings in the relevant submarket, including concessions offered to new tenants, such as free rent, tenant improvement allowances and moving allowances, (d) Tenant's creditworthiness and (e) the quality and location of the Building and the Project. In the event that the parties are unable to agree upon the FMV within thirty (30) days after Tenant notifies Landlord that Tenant is exercising the Option, then either party may request that the same be determined as follows: a senior officer of a nationally recognized leasing brokerage firm with local knowledge of the Torrey Pines laboratory/research and development leasing submarket (the "Baseball Arbitrator") shall be selected and paid for jointly by Landlord and Tenant. If Landlord and Tenant are unable to agree upon the Baseball Arbitrator, then the same shall be designated by the local chapter of the Judicial Arbitration and Mediation Services or any successor organization thereto (the "JAMS"). The Baseball Arbitrator selected by the parties or designated by JAMS shall (y) have at least ten (I 0) years' experience in the leasing of laboratory/research and development space in the Torrey Pines submarket and (z) not have been employed or retained by either Landlord or Tenant or any affiliate of either for a period of at least ten (10) years prior to appointment pursuant hereto. Each of Landlord and Tenant shall submit to the Baseball Arbitrator and to the other party its determination of the FMV. The Baseball Arbitrator shall grant to Landlord and Tenant a hearing and the right to submit evidence. The Baseball Arbitrator shall determine which of the two (2) FMV determinations more closely represents the actual FMV. The arbitrator may not select any other FMV for the Premises other than one submitted by Landlord or Tenant. The FMV selected by the Baseball Arbitrator shall be binding upon Landlord and Tenant and shall serve as the basis for determination of Base Rent payable for the Option term. If, as of the commencement date of the Option term, the amount of Base Rent payable during the Option term shall not have been determined, then, pending such determination, Tenant shall pay Base Rent equal to the Base Rent payable with respect to the last year of the then-current Tenn. After the final determination of Base Rent payable for the Option term, the parties shall promptly execute a written amendment to this Lease specifying the amount of Base Rent to be paid during the Option term. Any failure of the parties to execute such amendment shall not affect the validity of the FMV determined pursuant to this Section.

42.2. The Option is not assignable separate and apart from this Lease.

42.3. The Option is conditional upon Tenant giving Landlord written notice of its election to exercise the Option at least nine (9) months prior to the end of the expiration of the then-current Term. Time shall be of the essence as to Tenant's exercise of the Option. Tenant assumes full responsibility for maintaining a record of the deadlines to exercise the Option. Tenant acknowledges that it would be inequitable to require Landlord to accept any exercise of the Option after the date provided for in this Section.

42.4. Notwithstanding anything contained in this Article to the contrary, Tenant shall not have the right to exercise the Option:

(a) During the time commencing from the date Landlord delivers to Tenant a written notice that Tenant is in default under any provisions of this Lease and continuing until Tenant has cured the specified default to Landlord's reasonable satisfaction; or

(b) At any time after any Default as described in Article 31 of the Lease (provided, however, that, for purposes of this Section 42.4(b), Landlord shall not be required to provide Tenant with notice of such Default) and continuing until Tenant cures any such Default, if such Default is susceptible to being cured; or

(c) In the event that Tenant has defaulted in the performance of any monetary obligation or any material non-monetary obligation under this Lease two (2) or more times during the twelve (12)-month period immediately prior to the date that Tenant intends to exercise the Option, whether or not Tenant has cured such defaults.

42.5. The period of time within which Tenant may exercise the Option shall not be extended or enlarged by reason of Tenant's inability to exercise such Option because of the provisions of Section 42.4.

42.6. All of Tenant's rights under the provisions of the Option shall terminate and be of no further force or effect even after Tenant's due and timely exercise of the Option if, after such exercise, but prior to the commencement date of the new term, (a) Tenant fails to pay to Landlord a monetary obligation of Tenant for a period of twenty (20) days after written notice from Landlord to Tenant, (b) Tenant fails to commence to cure a default (other than a monetary default) within thirty (30) days after the date Landlord gives notice to Tenant of such default or (c) Tenant has defaulted under this Lease two (2) or more times and a service or late charge under Section 31.1 has become payable for any such default, whether or not Tenant has cured such defaults.

43. Right of First Refusal. For so long as Tenant leases and personally occupies the entire Premises (and the size of the then-current Premises is no smaller than size of the Premises as of the Execution Date), and subject to any other parties' pre-existing rights and/or encumbrances with respect to Available ROFR Premises (as defined below), Tenant shall have a one-time right of first refusal ("ROFR") as to that certain rentable premises in the Building commonly known as Suite 150 (as more particularly shown on the floor plan attached hereto as Exhibit J, "Suite 150") at such time as Landlord is seeking a tenant for such space ("Available ROFR Premises"); provided, however, that in no event shall Landlord be required to lease any Available ROFR Premises to Tenant for any period past the date on which this Lease expires or is terminated pursuant to its terms. In the event Landlord receives from a third party a bona fide offer to lease Available ROFR Premises that Landlord is willing to accept, Landlord shall provide written notice thereof to Tenant (the "Notice of Offer"), specifying the terms and conditions of a proposed lease to Tenant of the Available ROFR Premises.

43.1. Within seven (7) business days following its receipt of a Notice of Offer, Tenant shall advise Landlord in writing whether Tenant elects to lease all (not just a portion) of the Available ROFR Premises on the terms and conditions set forth in the Notice of Offer. If Tenant fails to notify Landlord of Tenant's election within such seven (7) business day period, then Tenant shall be deemed to have elected not to lease the Available ROFR Premises.

43.2. If Tenant timely notifies Landlord that Tenant elects to lease the Available ROFR Premises on the terms and conditions set forth in the Notice of Offer, then Landlord shall lease the Available ROFR Premises to Tenant upon the terms and conditions set forth in the Notice of Offer.

43.3. If Tenant notifies Landlord that Tenant elects not to lease the Available ROFR Premises on the terms and conditions set forth in the Notice of Offer, or if Tenant fails to notify Landlord of Tenant's election within the seven (7) business day period described above, then Landlord shall have the right to consummate the lease of the Available ROFR Premises on economic terms substantially similar to those set forth in the Notice of Offer following Tenant's election (or deemed election) not to lease the Available ROFR Premises.

43.4. Notwithstanding anything in this Article to the contrary, Tenant shall not exercise the ROFR during such period of time that Tenant is in default under any provision of this Lease. Any attempted exercise of the ROFR during a period of time in which Tenant is so in default shall be void and of no effect. In addition, Tenant shall not be entitled to exercise the ROFR if Landlord has given Tenant two (2) or more notices of default under this Lease, whether or not the defaults are cured, during the twelve (12) month period prior to the date on which Tenant seeks to exercise the ROFR.

43.5. Notwithstanding anything in this Lease to the contrary, Tenant shall not assign or transfer the ROFR, either separately or in conjunction with an assignment or transfer of Tenant's interest in the Lease, without Landlord's prior written consent, which consent Landlord may withhold in its sole and absolute discretion; provided that, (without limiting anything in Article 29) (a) in the event of an Exempt Transfer of Tenant's full interest in the Lease or (b) if Landlord approves (in writing) an assignment or transfer of Tenant's full interest in the Lease from Tenant to Tenant's Affiliate, then, in conjunction with (and not separate from) such Exempt Transfer or assignment or transfer, as applicable, and upon prior written notice to Landlord, Tenant may assign or transfer the ROFR to the transferee of such Exempt Transfer or such Tenant's Affiliate, as applicable. If Tenant (y) provides written notice to Landlord that Tenant will not be assigning or transferring the ROFR to the transferee of such Exempt Transfer or such Tenant's Affiliate, as applicable, or (z) does not provide written notice of the assignment or transfer of the ROFR to the transferee of such Exempt Transfer or such Tenant's Affiliate, as applicable, prior to the effective date of such Transfer, then the ROFR shall automatically be null and void and of no further force or effect.

43.6. If Tenant exercises the ROFR, Landlord does not guarantee that the Available ROFR Premises will be available on the anticipated commencement date for the Lease as to such Premises due to a holdover by the then-existing occupants of the Available ROFR Premises or for any other reason beyond Landlord's reasonable control.

43.7. Notwithstanding anything in this Lease to the contrary, the ROFR shall expire on the date that is thirty-six (36) months following the Term Commencement Date.

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have executed this Lease as of the date first above written.

LANDLORD:

BMR-ROAD TO THE CURE LP,

By: /s/ Kevin M Simonsen

Name: Kevin M Simonsen
Title: Sr. Vice President, Sr. Counsel

TENANT:

ERASCA, INC.,
a Delaware corporation

By: /s/ Jonathan Lim

Name: Jonathan Lim
Title: Executive Chairman

EXHIBIT A

PREMISES

[***]

EXHIBIT B

WORK LETTER

[***]

EXHIBIT B-1

TENANT WORK INSURANCE SCHEDULE

[***]

EXHIBIT C

ACKNOWLEDGEMENT OF TERM COMMENCEMENT DATE

THIS ACKNOWLEDGEMENT OF TERM COMMENCEMENT DATE is entered into as of , 2018, with reference to that certain Lease (the "Lease") dated as of 2018, by Erasca, Inc., a Delaware corporation ("Tenant"), in favor of BMR-Road to the Cure LP, a Delaware limited partnership ("Landlord"). All capitalized terms used herein without definition shall have the meanings ascribed to them in the Lease.

Tenant hereby confirms the following:

I. Tenant accepted possession of the Premises for construction of improvements or the installation of personal or other property on [_], 2018, and for use in accordance with the Permitted Use on [ ], 2018. Tenant first occupied the Premises for the Permitted Use on [ ], 2018.

2. The Premises are in good order, condition and repair.

3. Subject to any obligation of Landlord to pay any TI Allowance and any Furniture Allowance (in accordance with Article 4 of the Lease), all conditions of the Lease to be performed by Landlord as a condition to the full effectiveness of the Lease have been satisfied, and Landlord has fulfilled all of its duties in the nature of inducements offered to Tenant to lease the Premises.

4. In accordance with the provisions of Article 4 of the Lease, the Term Commencement Date is [ ], 2018.

5.The Lease is in full force and effect, and the same represents the entire agreement between Landlord and Tenant concerning the Premises, except [ ].

6. Tenant has no existing defenses against the enforcement of the Lease by Landlord, and there exist no offsets or credits against Rent owed or to be owed by Tenant.

7. The obligation to pay Rent is presently in effect and all Rent obligations on the part of Tenant under the Lease commenced to accrue on [ ], 20[ ], with Base Rent payable on the dates and amounts set forth in the chart below, subject to adjustment under the Lease (including any Base Rent Abatement subject to and in accordance with Section 7.5 of the Lease and the annual Base Rent adjustments provided in Article 8 of the Lease):

Dates	Square Feet of Rentable Area	Base Rent per Square Foot of Rentable Area	Monthly Base Rent	Annual Base Rent
December 1, 2018-November 30, 2019	11,173	$4.15 monthly	$ 46,367.95	$ 556,415.40

8. The undersigned Tenant has not made any prior assignment, transfer, hypothecation or pledge of the Lease or of the rents thereunder or sublease of the Premises or any portion thereof.

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, Tenant has executed this Acknowledgment of Term Commencement Date as of the date first written above.

TENANT:
ERASCA, INC.,
a Delaware corporation

By: _____

Name: _____

Title: _____

EXHIBIT D

[INTENTIONALLY OMITTED]

EXHIBIT E

FORM OF LETTER OF CREDIT

[***]

EXHIBIT F

[***]

EXHIBIT G

[INTENTIONALLY OMITTED]

EXHIBIT H

TENANT'S PROPERTY

None.

EXHIBIT I

FORM OF ESTOPPEL CERTIFICATE

[***]

EXHIBIT J

RIGHT OF FIRST REFUSAL SPACE

[***]

FIRST AMENDMENT TO LEASE

THIS FIRST AMENDMENT TO LEASE (this "Amendment") is entered into as of this 16th day of September, 2019, by and between BMR-ROAD TO THE CURE LP, a Delaware limited partnership ("Landlord"), and ERASCA, INC., a Delaware corporation ("Tenant").

RECITALS

A. WHEREAS, Landlord and Tenant are parties to that certain Lease dated as of July 27, 2018 (as the same may have been amended, amended and restated, supplemented or modified from time to time, the "Existing Lease"), whereby Tenant leases certain premises (the "Existing Premises") from Landlord at I 0835 Road to the Cure in San Diego, California (the "Building"), as more particularly described in the Existing Lease;

B. WHEREAS, Landlord and Tenant desire to expand the Existing Premises to include that certain space containing approximately four thousand nine hundred eighty (4,980) square feet of Rentable Area located on the first (1st) floor of the Building and known as Suite 150 (as more particularly described on Exhibit A attached hereto, the "First Amendment Premises"); and

C. WHEREAS, Landlord and Tenant desire to modify and amend the Existing Lease only in the respects and on the conditions hereinafter stated.

AGREEMENT

NOW, THEREFORE, Landlord and Tenant, in consideration of the mutual promises contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound, agree as follows:

1. Definitions. For purposes of this Amendment, capitalized terms shall have the meanings ascribed to them in the Existing Lease unless otherwise defined herein. The Existing Lease, as amended by this Amendment, is referred to collectively herein as the "Lease." From and after the date hereof, the term "Lease," as used in the Existing Lease, shall mean the Existing Lease, as amended by this Amendment.

2. First Amendment Premises. Effective as of the First Amendment Premises Term Commencement Date (as defined below), Landlord hereby leases to Tenant, and Tenant hereby leases from Landlord, the First Amendment Premises. From and after the First Amendment Premises Term Commencement Date, the term "Premises" as used in the Lease shall mean the Existing Premises plus the First Amendment Premises.

2.1 First Amendment Premises Term. The Term with respect to the First Amendment Premises (the "First Amendment Premises Term") shall commence on the First Amendment Premises Term Commencement Date and shall thereafter be coterminous with the Term for the Existing Premises, such that the Term with respect to the entire Premises (including both the Existing Premises and the First Amendment Premises) shall expire on the Term Expiration Date.

2.2 Condition of First Amendment Premises. Subject to Section 2.3 below, Tenant acknowledges that (a) it is fully familiar with the condition of the First Amendment Premises and, notwithstanding anything to the contrary in the Lease, agrees to take the same in its condition "as is" as of the First Amendment Premises Term Commencement Date, (b) neither Landlord nor any agent of Landlord has made (and neither Landlord nor any agent of Landlord hereby makes) any representation or warranty of any kind whatsoever, express or implied, regarding the First Amendment Premises, including (without limitation) any representation or warranty with respect to the condition of the First Amendment Premises or with respect to the suitability of the First Amendment Premises for the conduct of Tenant's business and (c) Landlord shall have no obligation to alter, repair or otherwise prepare the First Amendment Premises for Tenant's occupancy or to pay for any improvements to the First Amendment Premises, except with respect to payment of the First Amendment Premises TI Allowance (as defined below). The First Amendment Premises have not undergone inspection by a Certified Access Specialist (as defined in California Civil Code Section 55.52).

2.3 Landlord's Delivery Obligation. Landlord shall deliver possession of the First Amendment Premises to Tenant (a) in broom clean condition and (b) with the existing base building heating, ventilating and air conditioning system and the existing base building electrical, lighting and plumbing systems, in each case serving the First Amendment Premises (collectively, the "Existing Building Systems") in good working order ("Landlord's Delivery Obligation"). Tenant's taking of possession of the First Amendment Premises shall, except as otherwise agreed to in writing by Landlord and Tenant, conclusively establish that the First Amendment Premises, the Building and the Project were at such time in good, sanitary and satisfactory condition and repair and that Landlord's Delivery Obligation was satisfied; provided that, if Landlord fails to satisfy Landlord's Delivery Obligation (a "Delivery Shortfall"), then Tenant may, as its sole and exclusive remedy, deliver notice of such failure to Landlord detailing the nature of such failure (a "Shortfall Notice"); provided, further, that any Shortfall Notice must be received by Landlord no later than the date (the "Shortfall Notice Deadline") that is ninety (90) days after the First Amendment Premises Term Commencement Date. In the event that Landlord receives a Shortfall Notice on or before the Shortfall Notice Deadline, and provided that, (r) the Delivery Shortfall was not caused by (or did not arise from) (i) the misuse, misconduct, damage, destruction, negligence and/or any other action or omission of Tenant, Tenant's contractors or subcontractors, or any of their respective employees, agents or invitees, (ii) Tenant's failure to properly repair or maintain the First Amendment Premises as required by the Lease, (iii) any modifications, Alterations or improvements constructed by or on behalf of Tenant (including the First Amendment Premises Tenant Improvements (as defined below)) or (iv) any other event, circumstance or other factor arising or occurring after the First Amendment Premises Term Commencement Date, and (s) Landlord agrees that the Delivery Shortfall referenced in such Shortfall Notice exists, then Landlord shall, at Landlord's expense (and not as an Operating Expense), promptly remedy the Delivery Shortfall. Notwithstanding anything to the contrary in the Lease, Landlord shall not have any obligations or liabilities in connection with (y) a Delivery Shortfall except to the extent such Delivery Shortfall is identified by Tenant in a Shortfall Notice delivered to Landlord on or before the Shortfall Notice Deadline and such Delivery Shortfall gives rise to an obligation of Landlord to remedy such Delivery Shortfall under the immediately preceding sentence and/or (z) any failure of the Existing Building Systems to be in good working order arising from or in connection with (i) the misuse, misconduct, damage, destruction,

negligence and/or any other action or omission of Tenant, Tenant's contractors or subcontractors, or any of their respective employees, agents or invitees, (ii) Tenant's failure to properly repair or maintain the Premises as required by the Lease, (iii) any modifications, Alterations or improvements constructed by or on behalf of Tenant (including the First Amendment Premises Tenant Improvements) or (iv) any other event, circumstance or other factor arising or occurring after the First Amendment Premises Term Commencement Date, and in any such case, no Delivery Shortfall shall be deemed to have occurred as a result thereof.

2.4 Base Rent. Subject to Section 3 below, commencing as of December 1, 2019 (the "First Amendment Premises Rent Commencement Date") and continuing throughout the remainder of the First Amendment Premises Term, Tenant shall pay Base Rent for the First Amendment Premises in accordance with all of the terms, conditions and provisions of the Lease. Initial monthly and annual installments of Base Rent for the First Amendment Premises as of the First Amendment Premises Rent Commencement Date shall be as set forth in the table below:

Dates	Square Feet Of Rentable Area	Base Rent per Square Foot of Rentable Area	Monthly Base Rent	Annual Base Rent
12/1/19- 11/30/20	4,980	$ 4.30 monthly	$ 21,414.00	$ 256,968.00

2.5 Base Rent Adjustments. Base Rent for the First Amendment Premises shall be subject to an annual upward adjustment of three percent (3%) of the then-current Base Rent. The first such adjustment shall become effective commencing on the first (1st) annual anniversary of the First Amendment Premises Rent Commencement Date, and subsequent adjustments shall become effective on every successive annual anniversary for so long as the Lease continues in effect.

2.6 Base Rent Abatement. So long as no Default by Tenant has occurred, Tenant shall not be required to pay Base Rent for the first (I st) three (3) months following the First Amendment Premises Rent Commencement Date (such period, the "First Amendment Premises Free Rent Period"); provided, however, that the total amount of Base Rent abated during the First Amendment Premises Free Rent Period shall not exceed Sixty-Four Thousand Two Hundred Forty-Two Dollars ($64,242.00) (the "Free Rent Cap"). During the First Amendment Premises Free Rent Period, Tenant shall continue to be responsible for the payment of all of Tenant's other Rent obligations under the Lease with respect to the First Amendment Premises, including (without limitation) all Additional Rent such as Operating Expenses, the Property Management Fee, and costs of utilities. Upon the occurrence of any Default, the First Amendment Premises Free Rent Period shall immediately expire, and Tenant shall no longer be entitled to any further abatement of Base Rent pursuant to this Section.

2.7 Additional Rent. Tenant's obligations to pay Additional Rent in connection with the First Amendment Premises (including, without limitation, Operating Expenses and the Property Management Fee) shall commence on the First Amendment Premises Rent Commencement Date.

2.7.1 Property Management Fee. During the First Amendment Premises Free Rent Period, the Property Management Fee shall be calculated as if Tenant were paying Base Rent in the full amount required pursuant to the Lease had the First Amendment Premises Free Rent Period not been in effect.

2.7.2 Operating Expenses. Commencing as of the First Amendment Premises Rent Commencement Date, Tenant's Pro Rata Share of the Project shall equal 23.76%.

3. First Amendment Premises Term Commencement Date. The "First Amendment Premises Term Commencement Date" shall be the date that Landlord delivers possession of the First Amendment Premises to Tenant for construction of the First Amendment Premises Tenant Improvements (as defined below). Tenant shall execute and deliver to Landlord written acknowledgment of the First Amendment Premises Term Commencement Date within ten (I 0) business days of Landlord's request, in the form attached as Exhibit C hereto. Failure to execute and deliver such acknowledgment, however, shall not affect the First Amendment Premises Term Commencement Date or Landlord's or Tenant's liability hereunder. Failure by Tenant to obtain validation by any medical review board or other similar governmental licensing of the First Amendment Premises required for the Permitted Use by Tenant shall not serve to extend the First Amendment Premises Term Commencement Date.

4. First Amendment Premises TI Allowance. Tenant shall cause the work (the "First Amendment Premises Tenant Improvements") described in the First Amendment Premises Work Letter attached hereto as Exhibit B (the "First Amendment Premises Work Letter") at a cost to Landlord not to exceed One Hundred Ninety-Nine Thousand Two Hundred Dollars ($199,200) (based upon Forty Dollars ($40) per square foot of Rentable Area of the First Amendment Premises) (the "First Amendment Premises TI Allowance"). The First Amendment Premises TI Allowance may be applied to the costs of (a) construction, (b) project review by Landlord (which fee shall equal one percent (I%) of the cost of the First Amendment Premises Tenant Improvements, including the First Amendment Premises TI Allowance), (c) commissioning of mechanical, electrical and plumbing systems by a licensed, qualified commissioning agent hired by Tenant, and review of such party's commissioning report by a licensed, qualified commissioning agent hired by Landlord, (d) space planning, architect, engineering and other related services performed by third parties unaffiliated with Tenant, (e) building permits and other taxes, fees, charges and levies by Governmental Authorities for permits or for inspections of the First Amendment Premises Tenant Improvements, and (t) costs and expenses for labor, material, furniture, equipment and fixtures (provided, however, that no more than ten percent (10%) of the First Amendment Premises TI Allowance may be applied in the aggregate to furniture, equipment and fixtures at the First Amendment Premises). In no event shall the First Amendment Premises TI Allowance be used for (v) the cost of work that is not authorized by the Approved Plans (as defined in the First Amendment Premises Work Letter) or otherwise approved in writing by Landlord, (w) payments to Tenant or any affiliates of Tenant, (x) except as specifically permitted in Subsection 4(t) above, the purchase of any furniture, personal property or other non-building system equipment, (y) costs arising from any default by Tenant of its obligations under the Lease or (z) costs that are recoverable by Tenant from a third party (e.g., insurers, warrantors, or tortfeasors).

5. First Amendment Premises TI Deadline. Tenant shall have until the date that is six (6) months after the First Amendment Premises Term Commencement Date (such date, the "First Amendment Premises TI Deadline"), to submit Fund Requests (as defined in the First Amendment Premises Work Letter) to Landlord for disbursement of the unused portion of the First Amendment Premises TI Allowance, after which date Landlord's obligation to fund any such costs for which Tenant has not submitted a Fund Request to Landlord shall expire.

6. No Rent Credit. In no event shall any unused First Amendment Premises TI Allowance entitle Tenant to a credit against Rent payable under the Lease. Tenant shall deliver to Landlord (a) a certificate of occupancy (or its substantial equivalent) for the First Amendment Premises suitable for the Permitted Use and (b) a Certificate of Substantial Completion in the form of the American Institute of Architects document G704, executed by the project architect and the general contractor.

7. Insurance. Prior to entering upon the First Amendment Premises, Tenant shall furnish to Landlord evidence satisfactory to Landlord that insurance coverages required of Tenant under the provisions of Article 23 of the Existing Lease are in effect, and such entry shall be subject to all the terms and conditions of the Lease.

8. Utilities. Notwithstanding anything to the contrary in the Lease, Tenant shall be solely responsible for, and shall pay for, all utilities used in the First Amendment Premises commencing on the First Amendment Premises Term Commencement Date.

9. Restoration. Notwithstanding anything to the contrary in the Lease, on or before the expiration or earlier termination of the Lease, Tenant shall be required, as one component of its surrender and restoration requirements under the Lease, to perform the restoration work within the First Amendment Premises described on attached Exhibit D.

I 0. Right of First Refusal. Subject to any other parties' pre-existing rights with respect to Available ROFR Premises (as defined below), Tenant shall have a right of first refusal ("ROFR") as to the space described on Exhibit E attached hereto (the "ROFR Space"), subject to the terms, conditions and provisions of this Article. In no event shall Landlord be required to lease any Available ROFR Premises to Tenant for any period past the date on which the Lease expires or is terminated pursuant to its terms. To the extent that Landlord renews or extends a then-existing lease with any then-existing tenant of any space, or enters into a new lease with such then-existing tenant, the affected space shall not be deemed to be Available ROFR Premises. In the event that (a) Landlord receives from a third party a bona fide offer to lease all or any portion of the ROFR Space (together with any additional space that is the subject of such offer, "Available ROFR Premises"), and (b) Landlord is willing to accept such offer, Landlord shall provide written notice thereof to Tenant (the "Notice of Offer"), specifying the material terms and conditions of a proposed lease to Tenant of the Available ROFR Premises.

I 0.1 Within seven (7) business days following its receipt of a Notice of Offer, Tenant shall advise Landlord in writing whether Tenant elects to lease all (not just a portion) of the Available ROFR Premises on the terms and conditions set forth in the Notice of Offer. If Tenant fails to notify Landlord of Tenant's election within such seven (7) business day period, then Tenant shall be deemed to have elected not to lease the Available ROFR Premises.

I 0.2 If Tenant timely notifies Landlord that Tenant elects to lease the Available ROFR Premises on the terms and conditions set forth in the Notice of Offer, then Landlord shall lease the Available ROFR Premises to Tenant upon the terms and conditions set forth in the Notice of Offer.

I 0.3 If Tenant notifies Landlord that Tenant elects not to lease the Available ROFR Premises on the terms and conditions set forth in the Notice of Offer, or if Tenant fails to notify Landlord of Tenant's election within the seven (7) business day period described above, then Landlord shall have the right to consummate the lease of the Available ROFR Premises on any terms Landlord desires; provided, however, if Landlord desires to enter into a lease for the Available ROFR Premises on economic terms and conditions (i.e., base rent rate, base rent abatement (if applicable), tenant improvement allowance) that are more favorable than those set forth in the Notice of Offer, then Landlord shall deliver a second Notice of Offer ("Second Offer Notice") to Tenant containing the improved economic terms and conditions upon which Landlord desires to lease the Available ROFR Premises and Tenant shall have seven (7) business days following its receipt of a Second Offer Notice to advise Landlord in writing whether Tenant elects to lease all (not just a portion) of the Available ROFR Premises on the terms and conditions set forth in the Second Offer Notice. If Tenant notifies Landlord that Tenant elects not to lease the Available ROFR Premises on the terms and conditions set forth in the Second Offer Notice, or if Tenant fails to notify Landlord of Tenant's election within the· seven (7) business day period described above, then Landlord shall have the right to consummate the lease of the Available ROFR Premises on any terms Landlord desires.

I 0.4 Notwithstanding anything in this Article to the contrary, Tenant shall not exercise the ROFR during such period of time that Tenant is in default under any provision of the Lease. Any attempted exercise of the ROFR during a period of time in which Tenant is so in default shall be void and of no effect. In addition, Tenant shall not be entitled to exercise the ROFR if Landlord has given Tenant two (2) or more notices of default under the Lease, whether or not the defaults are cured, during the twelve (12) month period prior to the date on which Tenant seeks to exercise the ROFR.

I 0.5 Notwithstanding anything in the Lease to the contrary, Tenant shall not assign or transfer the ROFR, either separately or in conjunction with an assignment or transfer of Tenant's interest in the Lease, without Landlord's prior written consent, which consent Landlord may withhold in its sole and absolute discretion; provided that, (without limiting anything in Article 29 of the Lease) (a) in the event of an Exempt Transfer of Tenant's full interest in the Lease or (b) if Landlord approves (in writing) an assignment or transfer of Tenant's full interest in the Lease from Tenant to Tenant's Affiliate, then, in conjunction with (and not separate from) such Exempt Transfer or assignment or transfer, as applicable, and upon prior written notice to Landlord, Tenant may assign or transfer the ROFR to the transferee of such Exempt Transfer or such Tenant's Affiliate, as applicable.

10.6 If Tenant exercises the ROFR, Landlord does not guarantee that the Available ROFR Premises will be available on the anticipated commencement date for the Lease as to such Premises due to a holdover by the then-existing occupants of the Available ROFR Premises or for any other reason beyond Landlord's reasonable control.

10.7 Notwithstanding anything in the Lease to the contrary, the ROFR shall expire on the date that is thirty-six (36) months after the First Amendment Premises Term Commencement Date.

11. Broker. Tenant represents and warrants that it has not dealt with any broker or agent in the negotiation for or the obtaining of this Amendment, other than JLL ("Broker"), and agrees to reimburse, indemnify, save, defend (at Landlord's option and with counsel reasonably acceptable to Landlord, at Tenant's sole cost and expense) and hold harmless the Landlord Indemnitees for, from and against any and all cost or liability for compensation claimed by any such broker or agent, other than Broker, employed or engaged by it or claiming to have been employed or engaged by it. Broker is entitled to a leasing commission in connection with the making of this Amendment, and Landlord shall pay such commission to Broker pursuant to a separate agreement between Landlord and Broker.

12. No Default. Tenant represents, warrants and covenants that, to the best of Tenant's knowledge, Landlord and Tenant are not in default of any of their respective obligations under the Existing Lease and no event has occurred that, with the passage of time or the giving of notice (or both) would constitute a default by either Landlord or Tenant thereunder.

13. Notices. Tenant confirms that, notwithstanding anything in the Lease to the contrary, notices delivered to Tenant pursuant to the Lease should be sent to:

Erasca, Inc.
Attention: Legal Department
10835 Road to the Cure, Suite 140
San Diego, California 92121

14. Effect of Amendment. Except as modified by this Amendment, the Existing Lease and all the covenants, agreements, terms, provisions and conditions thereof shall remain in full force and effect and are hereby ratified and affirmed. In the event of any conflict between the terms contained in this Amendment and the Existing Lease, the terms herein contained shall supersede and control the obligations and liabilities of the parties.

15. Successors and Assigns. Each of the covenants, conditions and agreements contained in this Amendment shall inure to the benefit of and shall apply to and be binding upon the parties hereto and their respective heirs, legatees, devisees, executors, administrators and permitted successors and assigns and sublessees. Nothing in this section shall in any way alter the provisions of the Lease restricting assignment or subletting.

16. Miscellaneous. This Amendment becomes effective only upon execution and delivery hereof by Landlord and Tenant. The captions of the paragraphs and subparagraphs in this Amendment are inserted and included solely for convenience and shall not be considered or given any effect in construing the provisions hereof. All exhibits hereto are incorporated herein by reference. Submission of this instrument for examination or signature by Tenant does not constitute a reservation of or option for a lease, and shall not be effective as a lease, lease amendment or otherwise until execution by and delivery to both Landlord and Tenant.

17. Authority. Tenant guarantees, warrants and represents that the individual or individuals signing this Amendment have the power, authority and legal capacity to sign this Amendment on behalf of and to bind all entities, corporations, partnerships, limited liability companies, joint venturers or other organizations and entities on whose behalf such individual or individuals have signed.

18. Counterparts; Facsimile and PDF Signatures. This Amendment may be executed in one or more counterparts, each of which, when taken together, shall constitute one and the same document. A facsimile or portable document format (PDF) signature on this Amendment shall be equivalent to, and have the same force and effect as, an original signature.

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IN WITNESS WHEREOF, Landlord and Tenant have executed this Amendment as of the date and year first above written.

LANDLORD:

BMR-ROAD TO THE CURE LP,
a Delaware limited partnership

By: /s/ Kevin Simonsen
Name: Kevin Simonsen
Title: SVP, General Counsel & Secretary

TENANT:

ERASCA, INC.,
a Delaware corporation

By: /s/ Jonathan Lim
Name: Jonathan Lim
Title: Chairman & CEO

EXHIBIT A

FIRST AMENDMENT PREMISES

[***]

EXHIBIT B

FIRST AMENDMENT PREMISES WORK LETTER

[***]

EXHIBIT C

ACKNOWLEDGEMENT OF FIRST AMENDMENT PREMISES
TERM COMMENCEMENT DATE

THIS ACKNOWLEDGEMENT OF FIRST AMENDMENT PREMISES TERM COMMENCEMENT DATE is entered into as of [ ], 20( ], with reference to that certain First Amendment to Lease (the "Amendment") dated as of [ ], 20( ], by ERASCA, INC., a Delaware corporation ("Tenant"), in favor of BMR-ROAD TO THE CURE LP, a Delaware limited partnership ("Landlord"). All capitalized terms used herein without definition shall have the meanings ascribed to them in the Amendment.

Tenant hereby confirms the following:

I. Tenant accepted possession of the First Amendment Premises for construction of. improvements or the installation of personal or other property on [ ], 20(_], and for use in accordance with the Permitted Use on [ ], 20( ]. Tenant first occupied the Premises for the Permitted Use on [ ], 20( ].]

2. The First Amendment Premises are in good order, condition and repair.

3. All conditions of the Amendment to be performed by Landlord as a condition to the full effectiveness of the Tenant's lease of the First Amendment Premises have been satisfied, and Landlord has fulfilled all of its duties in the nature of inducements offered to Tenant to lease the First Amendment Premises.

4. In accordance with the provisions of Article [ ] of the Amendment, the First Amendment Premises Term Commencement Date is [ ], 20( ].

5. Tenant has no existing defenses against the enforcement of the Lease by Landlord, and there exist no offsets or credits against Rent owed or to be owed by Tenant.

6. The undersigned Tenant has not made any prior assignment, transfer, hypothecation or pledge of the Lease or of the rents thereunder or sublease of the Premises or any portion thereof.

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IN WITNESS WHEREOF, Tenant has executed this Acknowledgment of First Amendment Premises Term Commencement Date as of the date first written above.

TENANT:

ERASCA, INC.,
a Delaware corporation

By: _____
Name: _____
Title: _____

EXHIBIT D

REQUIRED RESTORATION WORK

[***]

EXHIBIT E

ROFRSPACE

[***]

SECOND AMENDMENT TO LEASE

THIS SECOND AMENDMENT TO LEASE (this "Amendment") is entered into as of this 19th day of November, 2021 (the "Second Amendment Execution Date"), by and between BMR- ROAD TO THE CURE LP, a Delaware limited partnership ("Landlord"), and ERASCA, INC., aDelaware corporation ("Tenant").

RECITALS

A. WHEREAS, Landlord and Tenant are parties to that certain Lease dated as of July 27, 2018, as amended by that certain First Amendment to Lease dated as of September 16, 2019 (the "First Amendment") (collectively, and as the same may have been further amended, amended and restated, supplemented or modified from time to time, the "Existing Lease"), whereby Tenant leases certain premises (the "Premises") from Landlord at 10835 Road to the Cure in San Diego, California (the "Building");

B. WHEREAS, Landlord and Tenant desire to modify the Term Expiration Date (as defined in the Existing Lease); and

C. WHEREAS, Landlord and Tenant desire to modify and amend the Existing Lease only in the respects and on the conditions hereinafter stated.

AGREEMENT

NOW, THEREFORE, Landlord and Tenant, in consideration of the mutual promises contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound, agree as follows:

1. Definitions. For purposes of this Amendment, capitalized terms shall have the meanings ascribed to them in the Existing Lease unless otherwise defined herein. The Existing Lease, as amended by this Amendment, is referred to collectively herein as the "Lease." From and after the date hereof, the term "Lease," as used in the Existing Lease, shall mean the Existing Lease, as amended by this Amendment.

2. Term Expiration Date. The "Term Expiration Date" under the Lease is hereby amended to be the date that is the earlier of (a) April 1, 2022, and (b) if applicable, the date specified by Tenant in the Early Term Expiration Date Notice (as defined below). In the event that Tenant desires for the Term Expiration Date to occur prior to the date set forth in Subsection 2(a) above, Tenant shall deliver written notice to Landlord specifying Tenant's desired Term Expiration Date (such notice, the "Early Term Expiration Date Notice"); provided, however, that the Term Expiration Date specified in the Early Term Expiration Date Notice must be (x) no earlier than the date that is thirty (30) days after the date that Tenant delivers the Early Term Expiration Date Notice to Landlord, and (y) no later than March 31, 2022.

3. Surrender of Premises. On or before the Term Expiration Date, Tenant shall surrender the Premises to Landlord in accordance with all of the terms, conditions and provisions of the Existing Lease; provided, however, that Tenant shall not be required to remove any of the

Tenant Improvements, and/or (b) notwithstanding Article 9 of the First Amendment, Alterations existing in the First Amendment Premises as of the Second Amendment Execution Date.

4. Personal Property. Concurrently with the execution of this Amendment, Landlord and Tenant shall execute and deliver a Bill of Sale (the "Bill of Sale") substantially in the form of Exhibit A attached hereto, whereby Tenant shall convey to Landlord all right, title and interest in and to the items listed on Schedule 1 of the Bill of Sale.

5. Right of First Refusal. As of the Second Amendment Execution Date, Article 10 of the First Amendment is hereby deleted in its entirety and shall no longer be of any further force or effect.

6. Broker. Tenant represents and warrants that it has not dealt with any broker or agent in the negotiation for or the obtaining of this Amendment, and agrees to reimburse, indemnify, save, defend (at Landlord's option and with counsel reasonably acceptable to Landlord, at Tenant's sole cost and expense) and hold harmless the Landlord Indemnitees for, from and against any and all cost or liability for compensation claimed by any such broker or agent employed or engaged by it or claiming to have been employed or engaged by it.

7. No Default. Tenant represents, warrants and covenants that, to the best of Tenant's knowledge, Landlord and Tenant are not in default of any of their respective obligations under the Existing Lease and no event has occurred that, with the passage of time or the giving of notice (or both) would constitute a default by either Landlord or Tenant thereunder.

8. Effect of Amendment. Except as modified by this Amendment, the Existing Lease and all the covenants, agreements, terms, provisions and conditions thereof shall remain in full force and effect and are hereby ratified and affirmed. In the event of any conflict between the terms contained in this Amendment and the Existing Lease, the terms herein contained shall supersede and control the obligations and liabilities of the parties.

9. Successors and Assigns. Each of the covenants, conditions and agreements contained in this Amendment shall inure to the benefit of and shall apply to and be binding upon the parties hereto and their respective heirs, legatees, devisees, executors, administrators and permitted successors and assigns and sublessees. Nothing in this section shall in any way alter the provisions of the Lease restricting assignment or subletting.

10. Miscellaneous. This Amendment becomes effective only upon execution and delivery hereof by Landlord and Tenant. The captions of the paragraphs and subparagraphs in this Amendment are inserted and included solely for convenience and shall not be considered or given any effect in construing the provisions hereof. All exhibits hereto are incorporated herein by reference. Submission of this instrument for examination or signature by Tenant does not constitute a reservation of or option for a lease, and shall not be effective as a lease, lease amendment or otherwise until execution by and delivery to both Landlord and Tenant.

11. Authority. Tenant guarantees, warrants and represents that the individual or individuals signing this Amendment have the power, authority and legal capacity to sign this Amendment on behalf of and to bind all entities, corporations, partnerships, limited liability

companies, joint venturers or other organizations and entities on whose behalf such individual or individuals have signed.

12. Counterparts; Facsimile and PDF Signatures. This Amendment may be executed in one or more counterparts, each of which, when taken together, shall constitute one and the same document. A facsimile or portable document format (PDF) signature on this Amendment shall be equivalent to, and have the same force and effect as, an original signature.

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IN WITNESS WHEREOF, Landlord and Tenant have executed this Amendment as of the Second Amendment Execution Date.

LANDLORD:

BMR-ROAD TO THE CURE LP,
a Delaware limited partnership

By: /s/ Kevin Tremblay
Name: Kevin Tremblay
Title: Vice President, San Diego Market Lead

TENANT:

ERASCA, INC.,
a Delaware corporation

By: /s/ Jonathan Lim
Name: Jonathan Lim
Title: Chairman & CEO

EXHIBIT A

BILL OF SALE

This instrument (this "Bill of Sale") dated as of__, 2021, is executed by and between ERASCA, INC., a Delaware corporation ("Seller"), and BMR-ROAD TO THE CURE LP, a Delaware limited partnership ("Purchaser").

1. Sale of Personal Property. Seller hereby transfers, sets over and conveys to Purchaser all right, title and interest in and to all tangible personal property described on Schedule 1 attached hereto (the "Personal Property"). Seller represents and warrants to Purchaser that Seller has good and valid title to the Personal Property and the full authority to transfer all of Seller's right, title and interest in and to the Personal Property to Purchaser. Seller hereby agrees and covenants that Seller is hereby transferring and conveying the Personal Property to Purchaser free and clear of any liens, claims or other encumbrances, and further agrees to indemnify and hold Purchaser harmless from and against any liability, loss, cost, damage or expense arising from any purported liens, claims or other encumbrances on the Personal Property or any claim relating thereto.

2. Purchase Price. In consideration for the Personal Property, Purchaser shall pay to Seller an amount equal to [***].

3. Successors and Assigns. This Bill of Sale is binding upon, and shall inure to the benefit of Seller and Purchaser and their respective heirs, legal representatives, successors and assigns.

4. Counterparts. This Bill of Sale may be executed in counterparts, each of which shall be deemed an original, but all of which, together, shall constitute one and the same instrument. Signature pages may be detached from the counterparts and attached to a single copy of this Bill of Sale to form one (1) document. A facsimile, electronic or portable document format (PDF) signature on this Bill of Sale shall be equivalent to, and have the same force and effect as, an original signature.

5. Governing Law. This Bill of Sale shall be governed by, interpreted under, and construed and enforceable in accordance with, the laws of the State of California.

6. Attorneys' Fees. Should either party employ attorneys to enforce any of the provisions hereof, the substantially prevailing party shall be entitled to receive from the other party all reasonable costs, charges, and expenses, including reasonable attorneys' fees, expended or incurred by the substantially prevailing party in connection therewith.

IN WITNESS WHEREOF, the undersigned have caused this Bill of Sale to be executed as of the date written above.

SELLER:

ERASCA, INC., a Delaware corporation

By:
Name: Jonathan Lim
Title: Chairman & CEO

PURCHASER:

BMR-ROAD TO THE CURE LP, a Delaware limited partnership

By:
Name:
Title: ___

Schedule A

Personal Property

[***]

Exhibit 10.16

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

EXCLUSIVE LICENSE AGREEMENT

BY AND BETWEEN

KATMAI PHARMACEUTICALS, INC.

AND

ERASCA, INC.

DATED AS OF MARCH 12, 2020

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

TABLE OF CONTENTS

Exhibit List

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

EXCLUSIVE LICENSE AGREEMENT

This EXCLUSIVE LICENSE AGREEMENT (this "**Agreement**") is entered into as of March 12, 2020 (the "**Effective Date**") by and between Katmai Pharmaceuticals, Inc., a Delaware corporation having an address at 1126 Goldenrod Ave., Corona Del Mar, CA 92625 ("**Katmai**"), and Erasca, Inc., a Delaware corporation having an address at 10835 Road to the Cure #140, San Diego, CA 92121 ("**Erasca**"). Erasca and Katmai are sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**".

RECITALS

WHEREAS, Katmai is a company engaged in the development of small molecule therapeutic and diagnostic products that modulate epidermal growth factor receptors and enable the identification, diagnosis, selection, treatment and/or monitoring of patients for neuro-oncological applications;

WHEREAS, Erasca desires to obtain an exclusive, worldwide license from Katmai to develop, manufacture, commercialize and otherwise exploit certain such products; and

WHEREAS, Katmai desires to grant such a license to Erasca on the terms and subject to the conditions set forth in this Agreement;

NOW, THEREFORE, in consideration of the premises and the mutual promises and covenants contained in this Agreement, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

1. DEFINITIONS

All references to particular Exhibits, Articles or Sections shall mean the Exhibits to, and Articles and Sections of, this Agreement, unless otherwise specified. For the purposes of this Agreement and the Exhibits hereto, the following words and phrases shall have the following meanings:

"**Accelerated Regulatory Approval**" means a Regulatory Approval by the FDA pursuant to 21 C.F.R. Subpart H, "Accelerated Approval of New Drugs for Serious or Life-Threatening Illnesses," as set forth in 21 C.F.R. §500 et al.

"**Affiliate**" means, with respect to any Person, any other Person that, directly or indirectly through one or more intermediaries, controls, is controlled by or is under common control with such Person, for as long as such control exists. For purposes of the definition of "Affiliate," "control" means the direct or indirect ownership of fifty percent (50%) or more of the voting or economic interest of a Person, or the power, whether pursuant to contract, ownership of securities or otherwise, to direct the management and policies of a Person. For clarity, once a Person ceases to be an Affiliate of a Party, then, without any further action, such Person shall cease to have any rights, including license and sublicense rights, under this Agreement by reason of being an Affiliate of such Party.

"**Agreement**" has the meaning set forth in the Preamble.

"**Audited Party**" has the meaning set forth in Section 3.6 (*Records and Audits*).

"**Back-up Compounds**" means compounds (i) Covered by the Existing Licensed Patent Rights other than JCN068, and (ii) having as their primary mechanism of action [***].

"Clinical Proof of Concept" means [***]
.

"**Clinical Study**" means a Phase 1 Study, Phase 1/2 Study, Phase 2 Study, Phase 2/3 Study or a Phase 3 Study, or other study (including a non-interventional study) in humans to obtain information regarding a product, including information relating to the safety, tolerability, pharmacological activity, pharmacokinetics, dose ranging or efficacy of the product.

"**Combination Product**" means a product that contains or uses a Licensed Compound and at least one other drug, device or biologically active pharmaceutical compound that is not a Licensed Compound (a "**Combination Product Component**") that satisfies all of the following conditions: (i) [***], (ii) [***], (iii) [***], and (iv). [***] If a Party (or in the case of Erasca, its Sublicensee) believes that a Licensed Product containing or using another drug, device or biologically active pharmaceutical compound that is not a Licensed Compound should qualify as a Combination Product under both this Agreement and the UC License Agreement, despite the fact that it does not meet one or more of the conditions set forth in subsections (i) through (iv) of this Agreement or the definition of such term in the UC License Agreement, such Party may request that the other Party reasonably cooperate with it to seek a waiver from UC to allow such Licensed Product to be treated as a Combination Product for purposes of the UC License Agreement. If such waiver is obtained from UC, then such Licensed Product shall be treated as a Combination Product consistent with the conditions of such waiver and pursuant to this Agreement.

"**Commercially Reasonable Efforts**" means those efforts and resources commensurate with those efforts commonly used, in accordance with applicable Laws in the biotechnology industry by a company of comparable resources and capabilities in connection with the development or commercialization of pharmaceutical products that are of similar status, including, with respect to commercial potential, the proprietary position of the product, the regulatory status and approval process, the probable profitability of the applicable product and other relevant factors such as technical, legal, scientific or medical factors. Notwithstanding the foregoing, with respect to the exercise of any rights in the Licensed Patents and Licensed Know-How Controlled by Katmai pursuant to the UC License Agreement and sublicensed to Erasca hereunder, "Commercially Reasonable Efforts" shall include at least the corresponding diligence efforts required under the UC License Agreement.

"**Confidential Information**" has the meaning set forth in Section 8.1(a) (*Confidential Information*).

"**Control**" or "**Controlled**" means, with respect to any Know-How, material, Patent Right, or other intellectual property right, the possession (whether by ownership or license) by a Party or its Affiliate of the ability to grant to the other Party a license, sublicense or access as provided herein to such Know-How, material, Patent Right, or other intellectual property right, without violating the terms of any agreement or other arrangement with any Third Party, or being obligated to pay any royalties or other consideration therefor, in existence as of the time such Party or its Affiliates would first be required hereunder to grant the other Party such license, sublicense or access.

"**Covered**" by a Patent Right means that a Valid Claim (absent a license thereunder or ownership thereof) would be Infringed by the Exploitation of the Licensed Product; provided that for any claim that is in an application and pending, then such pending claim shall be treated as if it were issued as then pending for the purposes of determining Infringement at the time coverage is assessed. Cognates of the word "**Cover**" shall have correlative meanings.

"**Defending Party**" has the meaning set forth in Section 4.5 (*Defense of Third Party Claims*).

"**Disclosing Party**" has the meaning set forth in Section 8.1(a) (*Confidential Information*).

"**Effective Date**" has the meaning set forth in the Preamble.

"**Enforcing Party**" has the meaning set forth in Section 4.4(b) (*Cooperation with Respect to Enforcement*).

"**Erasca Indemnified Parties**" has the meaning set forth in Section 7.1(a) (*By Katmai*).

"**Existing Licensed Patent Rights**" means any Licensed Patents existing as of the Effective Date, which are set forth on Exhibit B.

"**Exploit**" means to develop, make, use, offer for sale, sell, and import a product. Cognates of the word "Exploit" shall have correlative meanings.

"**FDA**" means the United States Food and Drug Administration or any successor entity thereto.

"**First Commercial Sale**" means, with respect to the Licensed Product in any country, the first sale for end use or consumption of the Licensed Product in such country after Regulatory Approval has been granted in such country.

"**GAAP**" means then current generally accepted accounting principles in the United States as established by the Financial Accounting Standards Board or any successor entity or other entity generally recognized as having the right to establish such principles in the United States, in each case consistently applied. Unless otherwise defined or stated herein, financial terms shall be calculated under GAAP.

"**Governmental Authority**" means any court, agency, department, authority or other instrumentality of any national, state, county, city or other political subdivision.

"**Indication**" means with respect to a product, a prophylactic or therapeutic use for a particular disease or condition with respect to which use at least one human clinical trial is required to support the inclusion of such disease or condition in the indication statement of a package insert approved by a Regulatory Authority for such Licensed Product and for which an application for Regulatory Approval (or a supplement, extension or amendment thereto) must be filed to obtain such approval by such Regulatory Authority; provided however that, the use of a Licensed Product for a disease or condition for a patient population that is a subset of the patient population for an Indication for which such Licensed Product has already received Regulatory Approval shall be deemed not to be a separate Indication from such already approved Indication.

"**Infringe**" or "**Infringement**" means any infringement as determined by Law, including, without limitation, direct infringement, contributory infringement or any inducement to infringe.

"**Initiation**" means, with respect to a human Clinical Study, the first dosing in the first patient in such Clinical Study.

"**Invention**" means any discovery or invention, whether or not patentable, conceived or otherwise made by either Party, or by both Parties, in exercising its rights or performing its obligations under this Agreement.

"**Investigator**" means either of [***] or [***].

"**Issuing Party**" has the meaning set forth in Section 8.2(b) (*Review*).

"**JCN068**" means the compound having the structure set forth in Exhibit C.

"**Katmai**" has the meaning set forth in the Preamble.

"**Katmai Acquiree**" shall have the meaning set forth in Section 10.8 (*Sale Transaction or Katmai Acquisition*).

"**Katmai Acquisition**" shall have the meaning set forth in Section 10.8 (*Sale Transaction or Katmai Acquisition*).

"**Katmai Indemnified Parties**" has the meaning set forth in Section 7.1(b) (*By Erasca*).

"**Know-How**" means techniques, technology, trade secrets, inventions, methods, know-how, data, materials (whether biological, chemical or physical) and results (including pharmacological, toxicological and clinical data and results), analytical and quality control data and results, regulatory documents and filings, and other information.

"**Law**" means, individually and collectively, any and all laws, ordinances, rules, directives, administrative circulars and regulations of any kind whatsoever of any Governmental Authority within the applicable jurisdiction.

"**Lead Licensed Compound**" means initially, JCN068, or any Back-up Compound that is developed instead of JCN068 or its replacement Back-up Compound, and all prodrugs, metabolites, stereoisomers, diastereomers, enantiomers, tautomers, solvates, hydrate forms, homologs, salt forms, labeled forms (e.g., deuterated, ^{13}C enriched, etc.), esters, crystalline forms (e.g., polymorphs), semi-crystalline forms, and amorphous forms, of such compound.

"**Licensed Compounds**" means (i) JCN068, (ii) any Back-up Compounds, and (iii) all prodrugs, metabolites, stereoisomers, diastereomers, enantiomers, tautomers, solvates, hydrate forms, homologs, salt forms, labeled forms (e.g., deuterated, 13C enriched, etc.), esters, crystalline forms (e.g., polymorphs), semi-crystalline forms, and amorphous forms, of any of the foregoing compounds.

"**Licensed Field**" means any and all fields of use.

"**Licensed Know-How**" means all Know-How that both (a) is Controlled by Katmai or its Affiliates as of the Effective Date or at any time during the Term and (b) is necessary or useful for the discovery, development, manufacture, or commercialization of Licensed Compounds or Licensed Products, including such Know-How as set forth on Exhibit A.

"**Licensed Materials**" means those physical, biological or tangible materials within the Licensed Know-How set forth on Exhibit A.

"**Licensed Patents**" means the Patent Rights Controlled by Katmai or its Affiliates as of the Effective Date or at any time during the Term that claim inventions necessary or useful for the discovery, development, manufacture or commercialization of Licensed Compounds or Licensed Products.

"**Licensed Product**" means a product containing or comprising a Licensed Compound, in any form or formulation.

"**Losses**" has the meaning set forth in Section 7.1(a) (*By Katmai*).

"**Milestone Events**" shall have the meaning set forth in Section 3.1(b) (*Milestone Payments*).

"**Milestone Payments**" shall have the meaning set forth in Section 3.1(b) (*Milestone Payments*).

"**Net Sales**" means, with respect to the Licensed Product, the total amount received (including fair market value of any non-cash consideration) by Erasca or its Sublicensee (a "**Selling Party**") on account of the sale, lease, provision, transfer, or other disposition of a Licensed Product to a customer, after deduction of the following in accordance with GAAP to the extent separately itemized in the applicable invoice, and not otherwise reimbursed, and allowed: (a) cash, trade or quantity discounts, rebates (including rebates similar to Medicare or other government rebates), and reimbursements, (b) any shipping costs, (c) allowances or credits because of rejected or returned products, (d) sales or use taxes, tariffs, import/export duties or other excise taxes imposed on particular sales, and value added taxes, and (e) allowances for uncollectible amounts; provided that no particular deduction may be accounted for more than once in the calculation of Net Sales. For clarity, with respect to Licensed Products sold that are submitted for payment to an insurance company, Medicare, Medicaid or any other governmental

or nongovernmental body for which less than 100% of the charged amount is actually paid to Erasca or its Sublicensees, any royalties payable under this Agreement shall be applied to the amount reimbursed less any applicable exclusions provided above. If Erasca or its Sublicensee makes any sales to any Third Party in a transaction in a given country that is not in an arms'-length transaction, or is transferred to a Third Party without charge or at a discount, then Net Sales means the gross amount normally charged to other customers in arm's length transactions less the allowable deductions set forth above. The sale, provision, transfer, or other disposition of a Licensed Product between Erasca and its Sublicensees when such Licensed Products are intended for subsequent sale to a customer shall not constitute Net Sales unless such Licensed Product is for end use by Erasca or such Sublicensee. In the case of transfers of Licensed Products between any of Erasca or its Sublicensees for subsequent sale, lease or other transfer, then Net Sales will be the greater of [***] (including [***]) (i) [***], or (ii) [***].

If a Licensed Product is sold (or Licensed Product service provided) in the form of a Combination Product, then the Net Sales of such Combination Product shall be determined as follows: Net Sales of such Combination Product shall be multiplied by the fraction A/(A+B), where A is the average list price of the Licensed Compound component over the last [***] ([***]) year period (or, solely prior to the date on which such [***] ([***]) year average list price is available, during the preceding shorter time period during which such list price information is available) when sold separately as a Licensed Product in the country of sale of the Combination Product, and B is the average list price of the Combination Product Component(s) over the last [***] ([***]) year period (or, solely prior to the date on which such [***] ([***]) year average list price is available, during the preceding shorter time period during which such list price information is available) in the same country. If the Licensed Compound component is not sold separately, and the Combination Product Component is sold separately, or if neither such Licensed Compound component, nor the Combination Product Component of the Combination Product, is sold separately in the country of sale of the Combination Product, the adjustment to Net Sales shall be determined by the Parties in good faith prior to the date Erasca or a Sublicensee commences sale of such Combination Product. Notwithstanding the foregoing, in no event will the proration factor set forth above be less than [***] ([***]); provided, however, that if the relative importance or value of the Licensed Compound component to the Combination Product is less than[***] ([***]), Katmai agrees to negotiate in good faith with Erasca with respect to a lower proration factor. In no event may Erasca apply any anti-royalty stacking provision to the Net Sales of a Licensed Product wherein the royalty owed to the Third Party with respect to such Licensed Product is in relation to the Combination Product Component of the Licensed Product.

"[***] **Field**" means [***].

"**Other Claimed Compounds**" means all compounds Covered by the Existing Licensed Patent Rights, other than Back-up Compounds and JCN068.

"**Party**" has the meaning set forth in the Preamble.

"**Patent Action**" has the meaning set forth in Section 4.2 (*Prosecution and Maintenance*).

"**Patent Rights**" means the rights and interests in and to all (a) patents, including, without limitation, granted patents, certificates of invention, registrations, reissues, extensions, substitutions, confirmations, renewals, re-registrations, re-examinations, revalidations, patents of additions or like filing thereof; (b) patent applications, including, without limitation, provisionals, converted provisionals, non-provisionals, continued prosecution applications, continuations, divisionals or continuations-in-part thereof, any patents issuing therefrom, and any substitution, extension, registration, confirmation, reissue, re-examination, renewal or like filing thereof, and (c) counterparts of the foregoing in any jurisdiction throughout the world.

"**Person**" means any corporation, limited or general partnership, limited liability company, joint venture, trust, unincorporated association, governmental body, authority, bureau or agency, any other entity or body, or an individual.

"Phase 1 Study" means a human clinical trial of a compound or product, the principal purpose of which is a preliminary determination of safety in the target patient population.

"Phase 1/2 Study" means a human clinical trial of a compound, the initial principal purpose of which is to determine preliminary safety in a target patient population followed by a Phase 2 Study component, the principal purpose of which is to determine both efficacy and safety in the target patient population.

"Phase 2 Study" means a human clinical trial of a compound or product for an Indication, the principal purpose of which is a determination of safety and efficacy for such Indication in the target patient population.

"Phase 2/3 Study" means a human clinical trial of a compound or product for an Indication, the principal purpose of which is a further determination of efficacy for such Indication and safety, in the target patient population, at the intended clinical dose or doses or range of doses, on a sufficient number of subjects and for a sufficient period of time to confirm the optimal manner of use of such compound or product (dose and dose regimen) for such Indication prior to Initiation of the pivotal Phase 3 Study for such Indication, and which itself provides sufficient evidence of safety and efficacy for such Indication that may be used directly to support the filing of a New Drug Application, without a Phase 3 Study, or to be included as a Phase 3 Study in filings with Regulatory Authorities.

"Phase 3 Study" means a human clinical trial of a compound or product for an Indication on a sufficient number of subjects that is designed to establish that the compound or product is safe and efficacious for its intended use, and to determine warnings, precautions, and adverse reactions that are associated with the compound or product in the dosage range to be prescribed, and to support Regulatory Approval of the compound or product for such Indication or label expansion of the compound or product.

"**Pricing Approval**" means any approval, agreement, determination, or decision establishing prices that can be charged to consumers for a pharmaceutical or diagnostic product or that shall be reimbursed by Governmental Authorities for a pharmaceutical or diagnostic product, in each case, in a country where Governmental Authorities approve or determine pricing for pharmaceutical or diagnostic products for reimbursement or otherwise.

"**Receiving Party**" has the meaning set forth in Section 8.1(a) (*Confidential Information*).

"**Regulatory Approval**" means, with respect to a Licensed Product in any country or jurisdiction, all approvals (including where required in order to market the Licensed Product, any Pricing Approval), registrations, licenses or authorizations from a Regulatory Authority in a country or other jurisdiction that are necessary to manufacture, use, store, import, distribute, market, and sell such Licensed Product in such country or jurisdiction.

"**Regulatory Authority**" means any Governmental Authority or other authority responsible for granting Regulatory Approvals for the Licensed Product, including the FDA and any corresponding national or regional regulatory authorities.

"**Regulatory Cause**" means a delay in the completion of a regulatory stage Development Milestone that is directly caused by the FDA or another Regulatory Authority either (a) putting a clinical hold on a Clinical Study involving a Licensed Product that Erasca or a Sublicensee is developing pursuant to this Agreement, or (b) requiring additional data relating to a Licensed Product that Erasca or a Sublicensee is developing pursuant to this Agreement was outside that agreed upon with the Regulatory Authority in any meeting with such Regulatory Authority in anticipation of such Clinical Study in a material or significant respect and is based on Regulatory Authority guidelines or regulations and such guidelines or regulations were only implemented after Initiation of a human Clinical Study for such Licensed Product, ***provided, however***, that with respect to (a)-(b), (i) such delay came to exist despite Erasca's (or a Sublicensee's) use of Commercially Reasonable Efforts to avoid such delay, (ii) such delay is not due in any material respect to Erasca's (or a Sublicensee's) actions or inactions that were counter to the guidance provided to Erasca (or a Sublicensee) or otherwise published by the Regulatory Authority, and (iii) such delay is not due in any material respect to Erasca's (or a Sublicensee's) failure to provide data to the Regulatory Authority in a form, amount and quality commonly used by companies of comparable resources and capabilities in the biotechnology industry or to undertake preclinical and clinical development in a form and of a quality that would be commonly used in the pharmaceutical industry.

"**Regulatory Exclusivity**" means, with respect to the Licensed Product, any exclusive marketing rights or data exclusivity rights conferred by the applicable Regulatory Authority with respect to the Licensed Product (that would satisfy the requirements of 21 CFR § 316.31, 21 USC § 355a, 42 USC § 262(k)(7) or its non-U.S. equivalents) other than a Patent Right.

"**Regulatory Filing**" means any (a) submissions, non-administrative correspondence, notifications, registrations, licenses, authorizations, applications and other filings with any Governmental Authority with respect to the research, clinical investigation, development, manufacture, distribution, pricing, reimbursement, marketing or sale of the Licensed Product and (b) Regulatory Approvals for the Licensed Product.

"**Release**" has the meaning set forth in Section 8.2(b) (*Review*).

"**Reviewing Party**" has the meaning set forth in Section 8.2(b) (*Review*).

"**Royalty Term**" has the meaning set forth in Section 3.1(d)(ii) (*Royalty Rate; Royalty Term*).

"**Sale Transaction**" has the meaning set forth in Section 10.7 (*Successors and Assigns*).

"**Selling Party**" has the meaning set forth in the definition of "Net Sales."

"**Subsequent Financing**" means a closing of the issuance and sale by Erasca of shares of its equity (preferred or common stock) in its first financing transaction in which Erasca receives cash proceeds in excess of[***] dollars ($[***]) following the Effective Date for purposes of the up-front payment in Section 3.1(a) and following the applicable Milestone Event for purposes of the investment right in Section 3.1(c).

"**Sublicensee(s)**" means any Person (whether an Affiliate of Erasca or a Third Party) to which Erasca has granted a sublicense under this Agreement.

"[***] **Candidate**" has the meaning set forth in Section 5.5 (*Exclusivity*).

"**Term**" has the meaning set forth in Section 9.1 (*Term*).

"**Territory**" means the entire world.

"**Third Party**" means a Person other than (a) Katmai or any of its Affiliates and (b) Erasca or any of its Affiliates.

"**Third Party Acquirer**" shall have the meaning set forth in Section 10.8 (*Sale Transaction or Katmai Acquisition*).

"UC License Agreement" means that certain Exclusive License Agreement between Katmai and The Regents of the University of California (the "**UC**") dated March 11, 2020 and attached as Exhibit D.

"**Valid Claim**" means (a) any issued claim in the Patent Rights that has not irrevocably: (i) expired; (ii) been disclaimed, cancelled or superseded, or if cancelled or superseded, has not been reinstated; and (iii) been revoked, held invalid, or otherwise declared unenforceable or not allowable by a tribunal or patent authority of competent jurisdiction over such claim in such country, in all cases from which no further appeal has or may be taken, and (b) any claim of a pending patent application in the Patent Rights that has not been irrevocably abandoned or finally rejected without the possibility of appeal or re-filing, provided that a claim within a patent application that has been pending for more than five (5) years from the date of issuance of the first substantive office action (e.g., a restriction requirement will not be deemed substantive) received with respect to such claim on a per country basis shall no longer be a Valid Claim unless and until such claim becomes an issued claim of an issued patent, in which case such claim will be deemed a Valid Claim for the purposes of this Agreement retroactively from the date it ceased being a Valid Claim.

2. LICENSE GRANT

2.1 Grant. Subject to the terms and conditions of this Agreement, Katmai hereby grants to Erasca an exclusive, royalty bearing license, with the right to grant sublicenses through multiple tiers in accordance with Section 2.2 (*Sublicenses*), under the Licensed Patents and the Licensed Know-How, in each case, to Exploit Licensed Compounds and Licensed Products in the Licensed Field in the Territory during the Term.

2.2 Sublicenses.

(a) Erasca shall be entitled, without the prior consent of Katmai, to grant one or more sublicenses, in full or in part, by a written agreement to Erasca's Affiliates and to Third Parties ([***]), ***provided, however,*** that: (a) any such permitted sublicense shall be consistent with and subject to the terms and conditions of this Agreement; (b) a copy of such sublicense with any such Sublicensee shall be delivered to Katmai within [***] ([***]) days of its execution and Katmai shall have the right to disclose such sublicense to the UC; (c) Erasca will continue to be responsible for full performance of Erasca's obligations under the Agreement and will be responsible for all actions of such Sublicensee as if such Sublicensee were Erasca hereunder; and (d) any such Sublicensee shall agree in writing to be bound by terms consistent with the obligations of Erasca hereunder that are relevant to the rights sublicensed to Erasca to Sublicensee under such sublicense agreement, including with respect[***]. For clarity, and subject to the provisions of the UC License Agreement, a sublicense granted to an Affiliate of Erasca, or to independent contractors acting on behalf of Erasca or its Sublicensees[***],.

(b) If this Agreement is terminated for any reason, at the request of any Sublicensee (and subject to any necessary approval of UC required under the UC License Agreement), the sublicense granted to such Sublicensee shall continue in full force and effect, provided that such Sublicensee neither is in default of its obligations under the relevant sublicense nor has caused Katmai to be in default of its obligations under the UC License Agreement, and will be assigned by Erasca to Katmai. Prior to any such assignment such Sublicensee shall furnish to Katmai written acknowledgment of its direct obligation to Katmai and contact information for purposes of notices under such sublicense agreement. The assigned sublicenses will remain in full force and effect with Katmai as the licensor or sublicensor instead of Erasca, but the duties of Katmai under the assigned sublicenses will not be greater than the duties of Katmai under this Agreement, and the rights of Katmai under the assigned sublicenses will not be less than the rights of Katmai under this Agreement, including all financial consideration and other rights of Katmai. Upon request by Katmai each such Sublicensee shall negotiate in good faith with Katmai any reasonable amendments to the relevant sublicense as necessary to conform such sublicense to this Agreement.

2.3 Transfer of Licensed Know-How and Licensed Materials.

(a) Katmai shall transfer to Erasca copies or samples of the Licensed Know-How, including the Licensed Materials, listed on Exhibit A, in accordance with a schedule to be mutually agreed by the Parties. Such transfer must be completed within three (3) months after the Effective Date. Katmai shall notify Erasca promptly following the completion of its transfer of such Licensed Know-How as set forth herein. Following such notification, Erasca shall promptly either (i) confirm to Katmai that such transfer is complete or (ii) notify Katmai, with reasonable specificity, of any Licensed Know-How on Exhibit A that have not yet been transferred, and, in the case of clause (ii) above, promptly following Erasca's notification, the Parties shall in good faith discuss and attempt to resolve such dispute.

(b) Following completion of the technology transfer contemplated in Section 2.3(a), Katmai shall provide, at Erasca's expense and on financial terms consistent with biotechnology industry standards (or such terms as Erasca may otherwise negotiate directly with the Investigators), consulting support consistent with the scope of the engagement, or make Commercially Reasonable Efforts to facilitate the Investigators to provide consulting support, in connection with the further Exploitation of the Licensed Product in the Territory as reasonably requested by Erasca.

(c) Erasca acknowledges that any materials transferred by Katmai to Erasca under this Agreement are experimental in nature and may have unknown characteristics and therefore agrees to use prudence and reasonable care in the use, handling, storage, transportation and disposition and containment of any such materials. Accordingly, no such materials shall be used in any human application, including any clinical trial.

2.4 License Conditions and Retained Rights of the UC.

(a) Erasca acknowledges that the license rights granted herein under the Licensed Patents and Licensed Know-How that are Controlled by Katmai pursuant to the UC License Agreement are so granted subject to the terms and conditions of the UC License Agreement, including that (i) the UC expressly reserves the right for itself and other nonprofit and academic research institutions to use such Licensed Patents and Licensed Know-How for (x) educational and non-commercial research purposes (including clinical research and research sponsored by commercial entities), and (y) to publish results arising therefrom; (ii) the UC's grant to the U.S. Government of a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the invention claimed by such Licensed Patents throughout the world; and (iii) such Licensed Know-How is licensed non-exclusively to Katmai by the UC and the UC retains the right to license such Licensed Know-How to Third Parties without notice.

(b) Erasca agrees (and will require all Sublicensees to agree in writing) that, unless a valid waiver is obtained from the applicable funding agency at Erasca's (or Katmai's) written request, Erasca's exclusive right to use or sell any Licensed Products in the United States is subject to the obligation that any Licensed Products will be manufactured substantially in the United States, to the extent required by 35 U.S.C. § 204 and applicable regulations of Chapter 37 of the Code of Federal Regulations.

(c) Nothing in this Agreement shall require Katmai to take or foreswear any action the result of which would reasonably result in the breach of the UC License Agreement. This Agreement shall be subject to the terms of the UC License Agreement, including the following provisions of the UC License Agreement in its Articles [***], and in the event of a conflict between the terms of this Agreement and those of the UC License Agreement, the terms of the UC License Agreement shall control.

2.5 Right of First Negotiation.

(a) For a period of [***] years from the Effective Date (the "**ROFN Period**"), Erasca shall have an exclusive first right to negotiate with Katmai to enter into a definitive agreement governing the research, development and commercialization of products (x) whose principal mode of action is inhibition of epidermal growth factor receptor(s), other than Licensed Products, (y) that are Covered by Existing Licensed Patent Rights or that are Covered by other Patent Rights acquired by Katmai from the [***] after the Effective Date, and (z) that may be suitable as a basis for therapeutic or diagnostic products or services in the Neuro-oncology Field (the "**ROFN Products**"), including without limitation rights for ROFN Products Katmai obtains pursuant to any license agreement (a "**ROFN Product Agreement**") between Katmai and the [***] as follows:

(b) During the ROFN Period, Katmai shall notify Erasca in writing upon the earlier of (x) Katmai's election to pursue development of an ROFN Product or (y) thirty (30) days (or as the Parties otherwise agree) after Katmai's entry into a ROFN Product Agreement, and provide to Erasca a summary of the ROFN Product Agreement and the related Patent Rights and ROFN Product. Katmai shall not grant to any Third Party any right to develop and commercialize a ROFN Product, or engage in any negotiations with any Third Party the terms of any agreement pursuant to which such Third Party would obtain such a license or other right to develop and commercialize the ROFN Product, until the applicable Release Date (as defined below), whereupon Erasca shall have no further rights under this Section 2.5 with respect to the applicable ROFN Products and ROFN Product Agreement. Erasca shall not use information included in any disclosure by Katmai related to a ROFN Product Agreement or ROFN Product to enter into discussions with the [***] or the Investigators or for any other purpose, other than exercising its rights of first negotiation under this Section 2.5. If within sixty (60) days after receiving such written notice from Katmai, Erasca delivers to Katmai a written notice that Erasca desires to negotiate with Katmai the terms of an agreement pursuant to which Erasca would obtain rights to develop and commercialize such ROFN Products, then until the Release Date, Katmai and Erasca will negotiate in good faith the terms of such agreement. The "**Release Date**" shall mean the date that is the first to occur of the date upon which Erasca notifies Katmai in writing that it is no longer interested in negotiating the terms of an agreement pursuant to which it would obtain the rights to develop and commercialize the relevant ROFN Products or the date that is sixty (60) days after Katmai delivers to Erasca notice in writing of (x) or (y) above. Erasca's rights under this Section 2.5 shall apply on a ROFN Product Agreement-by-ROFN Product Agreement basis.

2.6 Initial Focus; Back-up Compounds.

(a) Erasca shall use Commercially Reasonable Efforts to develop Licensed Products first for use within the **[***]**Field for treatment of primary cancers originating in the brain (e.g., gliomas) before expanding development efforts to include other Indications in the oncology field.

(b) Furthermore, subject to the remainder of this Section 2.6, the Parties have agreed that Erasca shall have the right to commercialize Licensed Products containing, **[***]** and not Licensed Products that contain more than **[***]** (**[***]**) **[***]**, whether such multiple Licensed Compounds are contained in the same or different Licensed Products. Erasca shall have the right during the Term prior to the first Regulatory Approval of any Licensed Product to conduct research and development activities to select Back-up Compounds to replace potentially the then-existing Lead Licensed Compound due to concerns regarding the safety, efficacy, or competitiveness of such Lead Licensed Compound, or other scientific, medical or intellectual property matters relating to such Lead Licensed Compound. Any replacement of a Lead Licensed Compound with

a Back-up Compound shall be effective upon Erasca's delivery of written notice that Erasca is replacing such Lead Licensed Compound with a Back-up Compound to Katmai, in which case the prior Lead Licensed Compound shall immediately be deemed a Back-up Compound and the selected Back-up Compound shall become the Lead Licensed Compound. If in performing activities with respect to Back-up Compounds as permitted in this Section 2.6, Erasca determines that it desires to, and develops plans to, commercialize Licensed Products containing the then-existing Lead Licensed Compound as well as Licensed Products containing one or more other Licensed Compounds, Erasca shall so notify the PAC, in which case the Parties shall negotiate an agreement to enable Erasca to do so pursuant to the procedures set in Section 2.6(d).

(c) As set forth in subsection (b), Erasca shall have the right to research and develop, but not commercialize, Back-up Compounds, for the purposes of determining the characteristics and properties of Back-up Compounds for potential replacement of a then-existing Lead Licensed Compound. Upon the reasonable request of Erasca, Katmai shall share information relevant to the potential safety and efficacy of Back-up Compounds identified by Erasca for treatment within the **[***]** Field.

(d) If Erasca desires to develop and/or commercialize concurrently multiple products containing different Licensed Compounds (and for clarity, this will not apply where Erasca wishes to engage in development of a Back-up Compound instead of and as a replacement for a Lead Licensed Compound then being developed as described in subsections (b) and (c)), such activity shall be the subject of a separate license agreement to be negotiated by the Parties in their discretion. If Erasca notifies Katmai in writing specifying the additional Licensed Compound(s) Erasca wishes to develop concurrently with the Lead Licensed Compound then being developed, the Parties shall negotiate in good faith the terms of a separate license agreement for sixty (60) days and if the Parties are not able to reach agreement within such sixty (60) day period (subject to extension by mutual agreement) Katmai shall have no further obligations to enter into an additional license agreement with respect to such other Licensed Compounds. Erasca shall not develop or commercialize any such additional Licensed Compounds unless and until the Parties agree on the terms of and enter into an applicable license agreement in addition to this Agreement. For clarity, one Licensed Compound shall be the same as another Licensed Compound for purposes of this Section 2.6(d) if the other Licensed Compound is a prodrug, metabolite, stereoisomer, diastereomer, enantiomer, tautomer, solvate, hydrate form, homolog, salt form, labeled form (e.g., deuterated, ^{13}C enriched, etc.), ester, crystalline form (e.g., a polymorph), semi-crystalline form, and amorphous form, of the first Licensed Compound.

2.7 Other Claimed Compounds. Neither Party shall develop an Other Claimed Compound except as permitted in this Section 2.7. Katmai grants Erasca during the Term a license, co-exclusive with Katmai, under the Licensed Patents to research and perform non-clinical development on, but not otherwise Exploit, Other Claimed Compounds for the purpose of characterizing such Other Claimed Compounds and determining Erasca's interest in developing such Other Claimed Compound. In the event that either Party desires to develop an Other Claimed Compound, such Party shall give notice of such interest to the other Party and the Parties shall discuss in good faith a potential research and development collaboration for such Other Claimed Compound in which the requesting Party expresses an interest. Development of Other Claimed Compounds shall proceed only pursuant to such a mutually agreed research and development collaboration between the Parties.

3. FEES, ROYALTIES AND PAYMENTS

3.1 Upfront Payment, Milestone Payments and Royalties.

(a) **Upfront Payment**.

(i) **Cash Consideration**. Within thirty (30) days following the Effective Date, Erasca shall make a non-refundable cash payment to Katmai in the amount of five million, six hundred seventy thousand dollars ($5,670,000).

(ii) **Equity Consideration**. In further consideration of the licenses and rights granted to Erasca hereunder, Katmai shall participate in Erasca's Subsequent Financing and purchase a number of shares of stock of Erasca having an aggregate value of $[***], at a price per share which is *pari passu* to all other investors who participate in the Subsequent Financing. Katmai's shares shall have the rights and obligations set forth in the then-effective Certificate of Incorporation of Erasca, together with the financing documents entered into by the other investors in the Subsequent Financing. At least ten (10) days prior to the closing of the proposed Subsequent Financing, Erasca shall provide written notice of the proposed financial terms of the Subsequent Financing to Katmai. Katmai shall execute the relevant purchase agreement and all other financing documents on terms consistent with the other investors in the Subsequent Financing. Notwithstanding the foregoing, the obligation under this subsection (ii) shall terminate upon and not apply to an initial public offering by Erasca or the earlier Sale Transaction.

(b) **Milestone Payments**. Erasca shall pay to Katmai certain one-time milestone payments ("**Milestone Payments**") following the first occurrence of specific milestone events, as set forth in Section 3.1(c) (*Milestone Event/Payment Table*) (the "**Milestone Events**"). Erasca shall pay to Katmai the applicable Milestone Payment within twenty-five (25) days after the first achievement of an applicable Milestone Event with respect to a Licensed Product by Erasca or its Sublicensees. For clarity, (a) each Milestone Payment is payable only once and (b) no Milestone Payment shall be payable for subsequent or repeated achievements of such Milestone Event with respect to one or more of the same or different Licensed Products. Each of the Milestone Payments shall be non-refundable and non-creditable.

(c) **Milestone Event/Payment Table**. The Milestone Events and Milestone Payments to be made pursuant to Section 3.1(b) (*Milestone Payments*) shall be as follows:

Milestone Event	Milestone Payment (USD)
[***]	$ [***]
[***]	$ [***]
[***]	$ [***]
[***]	$ [***]

Milestone Event	Milestone Payment (USD)
[***]	$ [***]
[***]	$ [***]
[***]	$ [***]
[***]	$ [***]
First calendar year in which annual Net Sales of Licensed Product exceeds $[***]	$ [***]

At Katmai's election, the [***] dollar ($]) payment for [***] may be paid entirely in cash or as a [***] ($[***]) cash payment and Katmai's right to invest [***] dollars ($[***]) in Erasca's next Subsequent Financing at a price per share which is *pari passu* to all other investors who participate in the Subsequent Financing. Katmai's shares shall have the rights and obligations set forth in the then-effective Certificate of Incorporation of Erasca, together with the financing documents entered into by the other investors in the Subsequent Financing. At least ten (10) days prior to the closing of the proposed Subsequent Financing, Erasca shall provide written notice of the proposed financial terms of the Subsequent Financing to Katmai. If Katmai fails to provide notice of its election to participate in the Subsequent Financing within such ten (10) day period, the right under this paragraph shall terminate. Notwithstanding the foregoing, the right under this paragraph shall terminate upon and not apply to an initial public offering by Erasca or earlier Sale Transaction.

(d) **Royalty Rate; Royalty Term**.

(i) Subject to the provisions of Section 3.1(e)(iii) (*Minimum Annual Royalty*), Erasca shall pay to Katmai a royalty on a Licensed Product-by-Licensed Product and country-by-country basis on annual Net Sales of Licensed Product sold by all Selling Parties during the applicable Royalty Term for Licensed Product in the Territory as follows, provided that if the composition of matter or method of use of a Licensed Products is not Covered by a Valid Claim of a Licensed Patent in the country in which it is sold at the time of sale, then the applicable royalty rate for Net Sales of such Licensed Product in such country shall be reduced by [***]percent [***] (%) from the amount set forth in the below table:

Net Sales	Royalty Rate
(i) The portion of Net Sales in the Territory in each Calendar Year up to and including the first [***] dollars ($[***]) in Net Sales for such Calendar Year	[***]%
(ii) The portion of Net Sales in the Territory in each Calendar Year exceeding [***] dollars ($[***]) up to and including [***] dollars ($[***]) in Net Sales for such Calendar Year	[***]%

Net Sales	Royalty Rate
(iii) The portion of Net Sales in the Territory in each Calendar Year exceeding [***] dollars ($[***]), plus an additional royalty as provided in (iv)	[***]%
(iv) Only after Regulatory Approval for a second Indication has been achieved in the United States, the portion of Net Sales in each Calendar Year exceeding [***] dollars ($[***]) in Net Sales for such Calendar Year shall be subject to a royalty in addition to that set forth in (iii) above	[***]%

(ii) Royalties will be payable on a quarterly basis; any such payments shall be made within thirty (30) days after the end of the calendar quarter during which the applicable Net Sales occurred. Erasca's obligation to pay royalties with respect to a Licensed Product in a particular country shall commence upon the First Commercial Sale of such Licensed Product in such country and shall expire on a Licensed Product-by-Licensed Product and country-by-country basis on the earlier of (a) the tenth (10th) anniversary of the expiration of all Valid Claims included in the Licensed Patents Covering the composition of matter or method of use of such Licensed Product in such country, or (b) the twentieth (20th) anniversary of the First Commercial Sale of such Licensed Product in such country (each such period, a "**Royalty Term**").

(iii) **Minimum Annual Royalty**. Commencing with the calendar year after the calendar year in which the First Commercial Sale of Licensed Product occurs, Erasca shall pay for each such calendar year during the Term during the Royalty Term a minimum annual royalty of [***] dollars ($[***]) no later than January 31st of such year, provided such minimum annual royalty shall be creditable against royalties accruing in the applicable calendar year.

(iv) **Validity Challenges**. If Erasca or a Sublicensee, itself or through a Third Party, institutes any proceeding that contests the validity of any Licensed Patent during the Term, Erasca agrees to pay to Katmai, directly and not into any escrow or other account, all royalties and other amounts due in view of Erasca's and its Sublicensees' activities under this Agreement during the period of challenge, and Katmai's and the UC's attorneys' fees in defending such action, with such fees payable on a monthly basis. Should the outcome of such contest determine that any challenged patent claim is valid, Erasca will thereafter, and for the remainder of the Royalty Term, pay an increased royalty rate equal to [***] ([***]) times the otherwise applicable royalty rate and the entirety of Katmai's and the UC's legal (including attorney) fees and costs incurred during such proceeding. Breach of this Section 3.1(d)(iv) shall be a material breach of the Agreement. If a Sublicensee challenges the validity of a Licensed Patent, so long as Erasca did not directly or indirectly induce, encourage, or otherwise assist such Sublicensee in its challenge of the Patent Rights, then the royalty rate payable with respect to Net Sales by Erasca or its Affiliates, as opposed to Net Sales by the relevant Sublicensees, will not be [***] pursuant to the preceding sentence; provided, further, Erasca shall promptly terminate the sublicense agreement(s) pursuant to which such Sublicensee has been granted rights under such Licensed Patents if such Sublicensee fails to pay, within forty-five (45) days after receiving an invoice from Katmai or UC detailing such fees and costs, the applicable increased royalty rate and the entirety of Katmai's and the UC's legal (including attorney) fees and costs incurred during such proceeding.

(e) **Third Party Payments and Royalty Minimum**.

(i) In the event that Patent Rights Controlled by a Third Party are necessary to exercise the rights licensed hereunder in the Licensed Patents with respect to the Exploitation of a Licensed Products in the Licensed Field in a country within the Territory under this Agreement, in a given calendar quarter, Erasca shall have the right to deduct from any payments payable to Katmai with respect to Net Sales of such Licensed Product in such country as set forth in Section 3.1(d) (*Royalty Rate; Royalty Term*) [***] percent ([***]%) of all royalties paid with respect to Net Sales of such Licensed Product in such country during such calendar quarter by or on behalf of Erasca to such Third Party for a license under such Patent Rights in connection with the Exploitation of Licensed Product in such calendar quarter subject to the royalty minimum set forth in Section 3.1(e)(iii) (*Royalty Minimum*) below. Notwithstanding the foregoing, Erasca shall confer with Katmai and provide Katmai with a reasonable opportunity to comment prior to Erasca's undertaking any commitment to make payments to a Third Party that would give rise to a right to make deductions with respect to royalty payments to Katmai under this Agreement. Katmai shall provide comments to Erasca regarding such arrangements within ten (10) days of notice of the applicable commitment, which Erasca will consider in good faith.

(ii) Notwithstanding anything to the contrary in this Agreement, Katmai shall remain solely responsible for the payment of all royalty, milestone, and other payment obligations, if any, due to Third Parties in connection with any Third Party license that Katmai sublicenses to Erasca under this Agreement, including, but not limited to, the UC License Agreement (the "**Katmai Third Party Obligations**"), provided that Katmai shall have no obligation to Erasca to fulfill any such Katmai Third Party Obligations (x) that are dependent upon Erasca's fulfilling its obligations under this Agreement, or (y) where Katmai's ability to perform such Katmai Third Party Obligation is impaired by Erasca's non-fulfillment of any of its obligations under this Agreement, (*e.g.*, Erasca's payment obligations) in the event that Erasca is not in full compliance with the relevant obligations under this Agreement.

(iii) **Royalty Minimum**. Notwithstanding anything else herein to the contrary, on a country-by-country basis and Licensed Product-by-Licensed Product basis, in no event will the applicable royalty otherwise due to Katmai in a calendar quarter be less than, or reduced to, an effective royalty rate that is less than [***] ([***] %) percentage points greater than the corresponding effective rate payable for such Net Sales in such country in such calendar quarter by Katmai to the UC under the UC License Agreement.

3.2 Buyout Option. Erasca will notify Katmai within thirty (30) days after the first achievement of Clinical Proof of Concept for any Indication (the "**POC Notice**"). Erasca shall have the right, exercisable by written notice to Katmai within [***] ([***]) days after Erasca provides the POC Notice, to submit to Katmai a non-binding offer, including purchase price and other material terms, for (a) the purchase of all Licensed Patents, Licensed Know-How and other assets owned by Katmai that are necessary or useful for Exploitation of Licensed Products in the Licensed Field in the Territory or (b) for the purchase of Katmai. Within [***] ([***]) days following receipt of Erasca's purchase proposal, Katmai may either decline, accept or counter

Erasca's offer with its own proposed purchase terms. If Katmai accepts or counters Erasca's offer within such [***] ([***]) day period, then for an additional [***] ([***]) days after Erasca's receipt of such acceptance or counter from Katmai (the "**Negotiation Period**"), the Parties shall negotiate in good faith the terms of an agreement pursuant to which Erasca may purchase such assets or Katmai.

If the Parties do not enter into an agreement governing Erasca's purchase of such assets or Katmai within the Negotiation Period, then upon mutual agreement of the Parties, an independent, third-party investment bank or investment advisory firm (a "**Firm**") with expertise in the pharmaceutical field shall be engaged by the Parties at the expense of the Party that initiated the discussion regarding the purchase of Katmai or Katmai's assets within the following[***] ([***]) days to (i) review each Party's respective valuations of the relevant assets or Katmai, (ii) conduct its own independent valuation analysis of such assets or Katmai, and (iii) deliver and review with the Parties the Firm's own independent valuation assessment of such assets or Katmai. Neither Katmai or Erasca shall be obligated to accept any proposed terms, whether made by Erasca or Katmai or the Firm.

After the Firm provides the assessment described in subsection (iii), the Parties may by mutual agreement continue to negotiate the terms of such purchase of such assets or Katmai in their sole discretion. Unless and until the Parties in their sole discretion enter into an agreement pursuant to which Erasca acquires such assets or Katmai, Katmai's rights to receive all milestone, royalty, and other payments payable to it pursuant to this Agreement shall continue in full force and effect as provided herein.

3.3 Method of Payment. Unless otherwise agreed by the Parties, all payments due from Erasca to Katmai under this Agreement shall be paid in U.S. Dollars by wire transfer or electronic funds transfer of immediately available funds to an account as Katmai may direct from time to time by written notice to Erasca. Katmai shall provide instructions for wire transfer to Erasca within twenty (20) days of the Effective Date.

After the First Commercial Sale of the first Licensed Product and until expiration of the last Royalty Term, Erasca shall prepare and deliver to Katmai royalty reports of the sale of the Licensed Product by the Selling Parties for each calendar quarter within thirty (30) days of the end of each such calendar quarter specifying in the aggregate and on a Selling Party-by-Selling Party, Licensed Product-by-Licensed Product, and country-by-country basis: (a) total units of Licensed Products sold, unit selling price for Licensed Product, and gross amounts for the Licensed Product sold or otherwise disposed of by a Selling Party; (b) amounts deducted by category in accordance with the definition of "Net Sales" in Article 1 (*Definitions*) from gross amounts to calculate Net Sales; (c) Net Sales; (d) deductions to royalties for payments to Third Parties pursuant to Section 3.1(e) (*Third Party Payments*) and the bases for the calculation of such deductions; and (e) royalties payable.

3.4 Currency Conversion. In the case of sales outside the United States, payments received by Erasca will be expressed in the U.S. Dollar equivalent calculated on a quarterly basis in the currency of the country of sale and converted to their U.S. Dollar equivalent using the average rate of exchange over the last thirty days of the applicable calendar quarter to which the sales relate, in accordance with GAAP and the then current standard methods of Erasca or the

applicable Sublicensee, to the extent reasonable and consistently applied; ***provided, however,*** that if, at such time, Erasca or such Sublicensee does not use a rate for converting into U.S. Dollar equivalents that is maintained in accordance with GAAP, then Erasca or such Sublicensee shall use the average rate of exchange over the last thirty days of the applicable quarter with reference to the rate of exchange for such currency reported in *The Wall Street Journal*, Internet U.S. Edition at www.wsj.com, during such portion of the applicable reporting period. Erasca will inform Katmai as to the specific exchange rate translation methodology used for a particular country or countries and cause any Sublicensees to comply with the terms of this Section 3.4.

3.5 Late Payments. In the event that any payment due hereunder is not made when due, the payment shall accrue interest beginning on the day following the due date thereof, calculated at the annual rate of the sum of (a) [***]percent ([***]%) plus (b) the prime interest rate quoted by *The Wall Street Journal*, Internet U.S. Edition at www.wsj.com on the date said payment is due, the interest being compounded on the last day of each calendar quarter; ***provided, however,*** that in no event shall said annual interest rate exceed the maximum rate permitted by Law. Each such payment when made shall be accompanied by all interest so accrued.

3.6 Records and Audits.

(a) Erasca will keep, and will require its Sublicensees to keep, complete and accurate records of the underlying revenue, expense and other data relating to the calculations of Net Sales generated in the then current calendar year and payments required under this Agreement, and during the preceding six (6) calendar years. Erasca will require its Sublicensees to provide to Erasca all information necessary to calculate the royalties payable to Katmai with respect to Net Sales of such Sublicensees, so that Katmai may exercise its rights under this Section 3.6 with respect to such information in Erasca's possession. Each of Katmai and the UC will have the right, once annually at its own expense, to have a nationally recognized, independent, certified public accounting firm, selected by it and subject to Erasca's prior written consent (which shall not be unreasonably withheld, conditioned or delayed), review any such records in the possession of Erasca and its Affiliates and Sublicensees (the "**Audited Party**") in the location(s) where such records are maintained by the Audited Party upon reasonable written notice (which shall be no less than thirty (30) days' prior written notice) and during regular business hours and under obligations of confidentiality, for the sole purpose of verifying the basis and accuracy of payments made under Article 3 (*Fees, Royalties and Payments*) within the seventy-two (72) month period preceding the date of the request for review. Erasca will receive a copy of each such report concurrently with receipt by Katmai. Should such inspection lead to the discovery of a discrepancy to Katmai's detriment, Erasca will, within thirty (30) days after receipt of such report from the accounting firm, pay the amount of the discrepancy together with interest at the rate set forth in Section 3.5 (*Late Payments*). Katmai will pay the full cost of the review unless the underpayment of amounts due to Katmai is greater than [***]percent ([***]%) of the amount due for any calendar year in the period being examined, in which case Erasca will pay the cost charged by such accounting firm for such review. Should the audit lead to the discovery of a discrepancy to Erasca's detriment, Erasca may credit the amount of the discrepancy, without interest, against future payments payable to Katmai under this Agreement, and if there are no such payments payable, then Katmai shall pay to Erasca the amount of the discrepancy, without interest, within forty-five (45) days of Katmai's receipt of the report.

3.7 Taxes.

(a) **Sales Tax**. Erasca is responsible for the payment of any state or local, sales or use, or similar fees or taxes arising as a result of the transfer of Licensed Materials by Katmai to Erasca pursuant to Section 2.3 (*Transfer of Licensed Know-How and Licensed Materials*), and Erasca will remit such fees or taxes to Katmai, as the collection agent, upon invoice.

(b) **Withholding**. In the event that any Law requires Erasca to withhold taxes with respect to any payment to be made by Erasca pursuant to this Agreement, Erasca will notify Katmai of such withholding requirement prior to making the payment to Katmai and provide such assistance to Katmai, including the provision of such standard documentation as may be required by a tax authority, as may be reasonably necessary in Katmai's efforts to claim an exemption from or reduction of such taxes. Erasca will, in accordance with such Law withhold taxes from the amount due, remit such taxes to the appropriate tax authority, and furnish Katmai with proof of payment of such taxes within thirty (30) days following the payment. If taxes are paid to a tax authority, Erasca shall provide reasonable assistance to Katmai to obtain a refund of taxes withheld, or obtain a credit with respect to taxes paid.

4. OWNERSHIP; PATENT PROSECUTION, MAINTENANCE AND INFRINGEMENT

4.1 Ownership.

(a) Erasca shall solely own Patent Rights Covering any Inventions made solely by or on behalf of Erasca, its Affiliates, or its Sublicensees.

(b) Katmai shall solely own Patent Rights Covering any Inventions made solely by or on behalf of Katmai and its Affiliates.

(c) All Patent Rights Covering any Inventions made jointly by or on behalf of both Katmai (or its Affiliates) and Erasca (or its Affiliates or Sublicensees) ("**Joint IP**") shall be jointly owned by both Katmai and Erasca.

4.2 Prosecution and Maintenance.

As between the Parties, Katmai shall control the filing, prosecution and maintenance (including through the conduct of interferences, oppositions, inter partes proceedings, post-grant proceedings, nullity actions and the like) of all Licensed Patents using outside counsel of its choice. Katmai will use good faith efforts to ensure that Erasca receives copies of all correspondence filed with and received from the applicable patent office during the Term and will consider any comments or suggestions by Erasca with respect thereto. While Katmai will control all Patent Actions and all decisions with respect to Patent Actions, it will consider any comments or suggestions by Erasca with respect thereto. Erasca has the right to request Patent Actions via a written request to Katmai [***] ([***]) days prior to the deadline set by the patent office in the territory such Patent Action is to take place. Katmai shall use all reasonable efforts to amend any patent application to include claims reasonably requested by Erasca to protect the Licensed Products contemplated to be sold under this Agreement and to file and prosecute patents in foreign

countries indicated by and paid for by Erasca. For purposes of this Section 4.2, a "**Patent Action**" means, with respect to the Licensed Patents, the preparation, filing, prosecution and maintenance of patent applications and patents in the Licensed Patents, including reexaminations, interferences, oppositions, inventorship related matters, and any other ex parte or inter partes matters (e.g., inter partes review petitions) originating or conducted in a patent office. [***]. Erasca acknowledges that (x) its rights with respect to the filing, prosecution, and maintenance of the Licensed Patents is subject to the terms and conditions of the UC License Agreement; and (y).[***]

4.3 Joint IP. The Parties shall confer in good faith regarding any decision to file, prosecute or maintain any Joint IP, and neither Party shall assign, license, or Exploit any Joint IP without the consent of the other Party except as otherwise permitted under this Agreement. For clarity, to the extent any Joint IP constitutes any Licensed Patents or Licensed Know-How, such Licensed Patents and Licensed Know-How will be subject to the license granted to Erasca pursuant to Section 2.1 (*Grant*).

4.4 Enforcement.

(a) **Erasca Enforcement**. Each Party will notify the other promptly in writing when any Infringement of a Licensed Patent by a Third Party with respect to a Licensed Compound or Licensed Product is discovered or reasonably suspected. Erasca will not notify such infringer regarding such potential Infringement until receiving Katmai's written permission, which permission will be subject to the terms and conditions of the UC License Agreement and otherwise will not be unreasonably withheld. If Erasca breaches the foregoing restriction and a declaratory judgment action is filed by such infringer against the UC, then Erasca will reimburse Katmai for the UC's out of pocket costs in defending the Licensed Patents as a result of such declaratory judgment. Katmai, Erasca, and, where applicable, the UC will use their diligent efforts to cooperate with each other to [***]. Subject to any rights of the UC with respect to the Licensed Patents under the UC License Agreement, (i) if such an Infringement of potential commercial significance has not been abated within thirty (30) days of notice of such Infringement, Erasca shall have the first right to enforce any patent within the Licensed Patents against any such Infringement or alleged Infringement thereof, with respect to a Licensed Compound or Licensed Product and shall at all times keep Katmai informed as to the status thereof; (ii) Erasca may not join the UC as a party in a suit initiated by Erasca without the UC's prior written consent; (iii) if the UC joins a suit initiated by Erasca, then Erasca [***]; and (iv) Erasca may, at its own expense (including an obligation to reimburse the UC with respect to any legal fees of counsel incurred by the UC in connection with the UC's joinder of such suit), institute suit against any such infringer or alleged infringer and control and defend and settle such suit in a manner consistent with the terms and provisions hereof and recover any damages, awards or settlements resulting therefrom, subject to Section 4.6 (*Recovery*); (v) Katmai or the UC may initiate suit against any such infringer or alleged infringer, at its own expense, if within ninety (90) days of notice of such Infringement, such Infringement has not abated and Erasca has not initiated suit against such infringer or alleged infringer; and (vi) each of Erasca and Katmai shall reasonably cooperate with the other Party, on such other Party's request, in any such litigation (including joining or being named a necessary party thereto) at the Enforcing Party's expense. Erasca shall not enter into any settlement of any action described in this Section 4.4(a) that admits to the invalidity or unenforceability of the Licensed Patents, incurs any financial liability on the part of Katmai or the UC or requires an

admission of liability, wrongdoing or fault on the part of Katmai or the UC, without Katmai's prior written consent, in each case, such consent not to be unreasonably withheld. Erasca shall not grant any rights in Licensed Patents in connection with any settlement of any action inconsistent with the requirements of Article 2 as they relate to the grant of sublicenses. Without limiting any rights to enforce the Licensed Patents held by UC, Katmai hereby agrees that it will not enforce the Existing Licensed Patent Rights, or Patent Rights claiming priority therefrom, or constituting international counterparts thereof, against any Infringement that is not with respect to a Licensed Compound or Licensed Product.

(b) **Cooperation with Respect to Enforcement**. Irrespective of which Party controls an action pursuant to this Section 4.4, the Parties will cooperate in such enforcement action and the Enforcing Party will consider in good faith the comments of the other Party with respect to strategic decisions and their implementation with respect to such action. In furtherance of the foregoing, the Party initiating or defending any such enforcement action (the "**Enforcing Party**") shall keep the other Party reasonably informed of the progress of any such enforcement action, and such other Party shall have the individual right to participate with counsel of its own choice at its own expense.

4.5 Defense of Third Party Claims. If either (a) any Licensed Product Exploited by or under authority of Erasca becomes the subject of a Third Party's claim or assertion of Infringement of a patent relating to the Exploitation of such Licensed Product in the Licensed Field in the Territory, or (b) a declaratory judgment action is brought naming either Party as a defendant and alleging invalidity or unenforceability of any of the Licensed Patents, the Party first having notice of the claim or assertion shall promptly notify the other Party, and the Parties shall promptly confer to consider the claim or assertion and the appropriate course of action. Subject to Article 7 (*Indemnification*), unless the Parties otherwise agree in writing, each Party shall have the right to defend itself against a suit that names it as a defendant (the "**Defending Party**"). Neither Party shall enter into any settlement of any claim described in this Section 4.5 that admits to the invalidity, narrowing of scope or unenforceability of the Licensed Patents or this Agreement, incurs any financial liability on the part of the other Party, or requires an admission of liability, wrongdoing or fault on the part of the other Party, without such other Party's prior written consent, in each case, such consent not to be unreasonably withheld, conditioned or delayed. In any event, the other Party shall reasonably assist the Defending Party and cooperate in any such litigation at the Defending Party's request and the Defending Party shall reimburse the other Party's reasonable out-of-pocket costs associated therewith.

4.6 Recovery. Except as otherwise provided, the costs and expenses of the Party bringing suit under Section 4.4 (*Enforcement*) shall be borne by such Party, and any damages, settlements or other monetary awards recovered shall be shared as follows: (a) the amount of such recovery actually received by the Party controlling such action shall first be applied to the out-of-pocket costs of each Party and the UC in connection with such action; and then (b) the remainder of the recovery shall be shared as follows:

(a) If Erasca is the Enforcing Party, [***] percent ([***]%) to Erasca and twenty-five percent (25%) to Katmai (and the UC, if applicable); and

(b) (i) If the UC is the Enforcing Party, [***] percent ([***]%) to Katmai, or (ii) if Katmai is the Enforcing Party, [***]percent ([***]%) to Erasca, and [***]percent ([***]%) to Katmai, but if Katmai or the UC requests that Erasca join such action (or if Erasca is involuntarily joined in such action, then [***]percent ([***]%) to Katmai and fifteen percent (15%) to Erasca).

4.7 Patent Term Extensions and Filings for Regulatory Exclusivity Periods.

(a) Erasca will advise Katmai if it desires to pursue any patent term extension or supplementary protection certificates or their equivalent for the Licensed Patents.

(b) Erasca will apply for an extension of the term of any patent included within the Licensed Patents, if appropriate, under the [***]; ***provided, however***, that such requirement shall not apply if Erasca, acting reasonably and in good faith, determines that seeking an extension of the term for another patent owned or licensed by Erasca would provide a materially longer patent protection coverage for the applicable Licensed Product. If Erasca or its Sublicensee proposes instead to seek an extension of the term for another Patent Right owned or controlled by Erasca, its Affiliate, or its Sublicensee that provides more comprehensive patent protection coverage for the applicable Licensed Product, the Parties will cooperate to request that UC waive any restrictions in the UC License Agreement that would preclude seeking such extension for such other Patent Right, and upon obtaining such waiver from UC, Erasca, or its Affiliate or Sublicensee shall have the right to seek such extension of such Patent Right. Erasca will prepare all documents and Katmai agrees to execute (or request that the UC execute, if applicable) the documents and to take additional action as Erasca reasonably requests in connection therewith. [***] If either Party receives notice pertaining to the Infringement or potential Infringement of any issued patent included with Licensed Patents under the [***] then that Party will within ten (10) days after receipt of such notice of Infringement so notify the other Party.

4.8 Patent Marking. Erasca will mark, and will cause all other Selling Parties to mark, the Licensed Product with all Licensed Patents in accordance with applicable Law, which marking obligation will continue for as long as (and only for as long as) required under applicable Law.

5. OBLIGATIONS OF THE PARTIES

5.1 Responsibility. Following the Effective Date and at all times during the Term (except as expressly stated otherwise herein), Erasca shall be responsible for, and [***], the research, development and commercialization of the Licensed Products in the Territory, including regulatory, manufacturing, distribution, marketing and sales activities. Subject to the terms and conditions of this Agreement, all decisions concerning the development, marketing and sales of Licensed Product including the clinical and regulatory strategy, design, sale, price and promotion of Licensed Product under this Agreement shall be within the sole discretion of Erasca.

5.2 Diligence. Erasca shall use, and shall cause its Sublicensees to use, Commercially Reasonable Efforts to (a) diligently proceed with the development of, and obtaining of Regulatory Approval for, Licensed Products in the [***] Field in the Territory; and (b) after obtaining applicable Regulatory Approval in countries within the Territory, manufacture, supply, market, and sell the Licensed Products in quantities sufficient to meet the market demands therefor in such countries. On or before the dates indicated below, Erasca will achieve each of the following development milestones with respect to a Licensed Product ("**Development Milestones**"):

A. Submit to the FDA an Investigational New Drug application for a Licensed Product by [***].

B. [***]

C. [***]

D. [***]

E. [***]

F. [***]

Notwithstanding the foregoing, if Erasca elects to develop a Back-up Compound pursuant to Section 2.6 (*Initial Focus; Back-up Compounds*), the Parties will cooperate in requesting that the UC agree to extend the deadlines in the UC License Agreement corresponding to the dates specified above for any unmet Development Milestones by a time period as necessary to reflect the time reasonably necessary to allow the Development of the Back-up Compound to the point where such Development Milestone event would be achieved assuming Erasca or its Sublicensees used Commercially Reasonable Efforts to develop such Back-up Compound, and the dates specified above for the Development Milestones shall then be adjusted to match the revised deadlines of the UC License Agreement. Furthermore, if a given milestone set out above is not achieved before a subsequent milestone is achieved, upon achievement of the subsequent milestone all preceding milestones shall be deemed to have been achieved.

Failure to achieve a Development Milestone by the deadline set forth above, as extended pursuant to this Section 5.2, if applicable, shall be a material breach of this Agreement. If the completion of any of the Development Milestones above is delayed beyond the corresponding deadline solely because of the existence of a Regulatory Cause, then Erasca, upon a written request by Erasca to Katmai setting forth the basis for the delay and providing copies to Katmai of documents and correspondence from the FDA that set forth the basis for Erasca's assertion that the Regulatory Cause exists, may request that Katmai in good faith consider amending this Agreement to extend such Development Milestone once for a maximum of a [***] month period, or so long as such Regulatory Cause exists, whichever is shorter. Notwithstanding the foregoing, however, if Erasca provides Katmai with a written representation from its legal counsel that such Regulatory Cause would similarly prevent any other potential licensee of the Licensed Patents from further developing Licensed Products, then so long as Erasca is in good standing with respect to its obligations owed hereunder and, in good faith, requests an extension, Katmai agrees to extend such cap to a total of [***] ([***]) months, which may be (upon request from Erasca) further extended by Katmai in its sole discretion.

If Erasca is unable to meet a due Development Milestone for any reason other than Regulatory Cause, Erasca may extend the Development Milestones deadlines set forth above in [***] month increments, but not more than [***] ([***]) months in total across all Development Milestones, by making a [***] dollar ($[***]) payment to Katmai for the first [***] month Development Milestones deadline extension, and [***] ($[***]) payments for the second and third extensions each, with the third extension being the last allowable extension. In the event of any extension, the deadlines for meeting any later occurring Development Milestones will be similarly extended.

5.3 Project Advisory Committee. Promptly after the Effective Date, the Parties shall jointly form a Project Advisory Committee ("**PAC**") mutually determined to comprise not fewer than four (4) or more than eight (8) members with an equal number of members nominated by each Party, provided such members shall be senior management or scientific founders of a Party with requisite expertise to participate in the PAC. The PAC shall review and comment on the plans for development of Licensed Compounds and Licensed Products, review progress and results of such development and coordinate the activities of the Parties (and any Sublicensees, if applicable) with respect to such development. The PAC shall meet at least quarterly with at least one in-person meeting per year. Each Party shall report to the PAC regarding the drug development plan for Licensed Compounds, amendments to such plans and corresponding outcomes, including key goals, strategies, responsibilities, timelines and resource allocations, and the PAC shall provide a forum for each Party to provide comments on such plans and outcomes, to discuss any decisions by Erasca to take a license under Third Party Patent Rights that would be offset pursuant to Section 3.1(e) (*Third Party Payments*) against royalties payable to Katmai and to explore other areas of potential collaboration between the Parties. The PAC shall not have the authority to amend this Agreement or alter the rights and obligations of the Parties thereunder.

5.4 Katmai Funding. From time to time prior to achievement of the first milestone in Section 3.1(c) (*Milestone Event/Payment Table*), the Parties shall discuss the terms pursuant to which Katmai may provide funding, including, without limitation, by means of applying government grant or non-profit organization awards or gifts, to support development of the Licensed Product at Katmai or the UC. If the Parties agree in writing upon Katmai's provision of such funding for such purpose, then every year that such Katmai funding is provided, upon the earlier of the end of the calendar year or the completion of grant-funded activities, Erasca will reimburse to Katmai all amounts provided by Katmai to support such development activities, not to exceed a total of [***] dollars ($[***]), so long as Erasca is engaged in an active program for the development of Licensed Product at such time or the first milestone in Section 3.1(c) (*Milestone Event/Payment Table*) has been achieved.

5.5 Exclusivity. During the Term, neither Party nor any of its Affiliates shall directly or indirectly develop or Exploit [***] for the prevention or treatment of any Indication within the [***] Field (nor license, permit, encourage, or facilitate any Third Party to do so), except with respect to Licensed Products as permitted under this Agreement. For clarity, neither Party shall pursue the development or other Exploitation of any compound competitive with JCN068 or a Back-up Compound within the[***] Field; ***provided***, ***however***, nothing in this Section 5.5 shall restrict the right of either Party to research, develop and otherwise Exploit other compounds outside the scope of this Agreement that are effective as a[***] in the [***]Field, and which are intended primarily for the clinical treatment of [***] cancers (a "[***] **Candidate**"). Notwithstanding the foregoing, Erasca will not file for regulatory approval of any [***] Candidate for any indication in the[***] Field if (i) regulatory approval of such [***] Candidate for such

indication in the [***] Field would limit the commercial revenue potential of JCN068 or a Back-up Compound for such indication in the[***] Field, and (ii) JCN068 or a Back-up Compound has demonstrated, or is likely to demonstrate based on clinical and/or non-clinical data, clinical utility, sufficient to warrant continued clinical development for the purpose of obtaining Regulatory Approval in the [***] Field. For clarity, nothing in this Section 5.5 will restrict Erasca's ability to develop and commercialize any [***] outside of the [***]Field.

5.6 Reports. On an annual basis, Erasca shall submit to Katmai a detailed report providing the status of Erasca's and its Sublicensees' activities related to the Exploitation of the Licensed Product during the preceding twelve (12)-month period, and future activities related to the Exploitation of the Licensed Product it then-currently expects to be conducted during the following thirty-six (36) month period.

5.7 Licensed Product Supply. As between the Parties, Erasca shall be responsible for, and shall bear the cost of, obtaining (whether by manufacturing or causing to be manufactured) clinical and commercial supplies of the Licensed Product.

5.8 Regulatory Filings. During the Term, as between Katmai and Erasca, Erasca (or its designee) shall have the sole right to file and hold title to Regulatory Filings relating to the Licensed Product.

6. REPRESENTATIONS

6.1 Mutual Warranties. Each of Katmai and Erasca represent and warrant to the other Party that, as of the Effective Date:

(a) it is duly organized and validly existing under the Law of the jurisdiction of its incorporation, and has full corporate power and authority to enter into this Agreement and to carry out the provisions hereof;

(b) it is duly authorized to execute and deliver this Agreement and to perform its obligations hereunder, and the individual executing this Agreement on its behalf has been duly authorized to do so by all requisite corporate action;

(c) it shall comply with all applicable Law (including applicable Law relating to data protection and privacy) in connection with the performance of its rights, duties and obligations under this Agreement;

(d) this Agreement is legally binding upon it and enforceable in accordance with its terms; and

(e) the execution, delivery and performance of this Agreement by it does not conflict with any agreement, instrument or understanding, oral or written, to which it is a party or by which it may be bound, nor violate any material applicable Law.

6.2 Additional Katmai Warranties. Katmai represents and warrants to Erasca that, as of the Effective Date:

(a) Subject to the UC License Agreement, Katmai controls the patent applications and patents listed on Exhibit B as is necessary to grant to Erasca a license thereunder with respect to Licensed Compounds and Licensed Products pursuant to this Agreement;

(b) Katmai does not own or have a license to any patent applications or patents that Cover any Licensed Compounds or Licensed Products as of the Effective Date that are not set forth on Exhibit B;

(c) Katmai has not granted to any Third Party any rights or licenses under the Licensed Patents or Licensed Know-How that would conflict with the licenses granted to Erasca hereunder;

(d) To Katmai's knowledge, no patent application or registration within the Licensed Patents is the subject of any pending interference, opposition, cancellation or patent protest pursuant to 37 C.F.R. §1.291;

(e) Katmai has no actual knowledge (for clarity, without any obligation to perform any special search) that the manufacture, use, sale, offer for sale, or importation of a Licensed Product containing JCN068 in the Licensed Field does or will infringe or misappropriate Patent Rights or other intellectual property rights of any Third Party;

(f) To Katmai's actual knowledge (for clarity, without any obligation to perform any special search), there is no prior art that has not been disclosed to any patent authority, or any failure to comply with applicable rules of a patent authority in filing or prosecuting the Licensed Patents, that would reasonably result in the invalidity or unenforceability of the Licensed Patents;

(g) Katmai has no knowledge of any claim or litigation that has been brought or threatened in writing by any Third Party alleging that (i) the Licensed Patents are invalid or unenforceable or (ii) the manufacture, use, sale, offer for sale, or importation of the Licensed Product in the Licensed Field Infringes or misappropriates or would Infringe or misappropriate any right of any Third Party; and

(h) Neither Katmai nor its independent contractors or employees engaged in activities relating to Licensed Compounds or Licensed Products have been debarred, excluded or the subject of debarment or exclusion proceedings by any Governmental Authority**.**

6.3 Disclaimer. EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS ARTICLE 6 (*REPRESENTATIONS*), NEITHER PARTY MAKES ANY REPRESENTATIONS OR EXTENDS ANY WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY, QUALITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, OR VALIDITY OF PATENT CLAIMS. NOTHING IN THIS AGREEMENT SHALL BE CONSTRUED AS A REPRESENTATION MADE OR WARRANTY GIVEN BY EITHER PARTY THAT EITHER PARTY WILL BE SUCCESSFUL IN OBTAINING ANY PATENT RIGHTS, OR THAT ANY PATENTS WILL ISSUE BASED ON A PENDING APPLICATION. WITHOUT LIMITING THE RESPECTIVE RIGHTS AND OBLIGATIONS OF THE PARTIES EXPRESSLY SET FORTH HEREIN, EACH PARTY SPECIFICALLY DISCLAIMS ANY GUARANTEE THAT THE PRODUCTS WILL BE SUCCESSFUL, IN WHOLE OR IN PART.

6.4 Katmai Representations, Warranties and Covenants. Katmai covenants to Erasca that:

(a) Katmai has maintained and, so long as Erasca is in compliance terms of this Agreement that are necessary to enable Katmai to comply with, or otherwise directly related to Katmai's ability to comply with, the UC License Agreement, including timely payment to Katmai of all monies owed by Erasca to Katmai, will maintain and keep in full force and effect the UC License Agreement, including by making all payments due under the UC License Agreement in a timely fashion. As of the Effective Date, Katmai is in compliance in all material respects with the UC License Agreement, and has performed all material obligations required to be performed by Katmai to date under the UC License Agreement and, to Katmai's knowledge, the UC is not in breach or default in any respect of the UC License Agreement.

(b) If Katmai receives a notice or other communication alleging it is in breach (including a notice or other communication threatening termination) of the UC License Agreement, Katmai shall promptly provide Erasca with a copy of such notice, and such notice shall be provided in advance of any due date for curing the alleged breach. Without limiting any other right or remedy of Erasca under this Agreement and in order to prevent, ameliorate, mitigate, or cure a breach of the UC License Agreement, Erasca may elect to pay any amounts owed to UC under the UC License Agreement (after providing Katmai a reasonable opportunity to do so first), provided that Erasca shall not make any payment to UC prior to the date that is ten (10) days before the end of Katmai's cure period under the UC License Agreement with respect to such alleged breach. If Erasca makes any such payments to UC, Erasca may offset such payments against any future payments otherwise owed by Erasca to Katmai under this Agreement. This Agreement sets forth the obligations of the Parties, and nothing in this Agreement (including any standard of effort set forth herein) shall limit or modify the obligations of Katmai under the UC License Agreement.

(c) So long as Erasca is in compliance with those terms of this Agreement that are necessary to enable Katmai to comply with, or otherwise directly related to Katmai's ability to comply with, the UC License Agreement, including timely payment to Katmai of all monies owed by Erasca to Katmai, Katmai shall not agree or consent to any amendment, supplement, or other modification (including termination) to the UC License Agreement that materially affects Erasca's rights under this Agreement without Erasca's prior written consent, to be given on a case-by-case basis in Erasca's discretion.

7. INDEMNIFICATION

7.1 Indemnity.

(a) **By Katmai**. Katmai agrees to defend Erasca and its (and its Affiliates') directors, officers, employees and agents (the "**Erasca Indemnified Parties**") at Katmai's cost and expense, and will indemnify and hold Erasca and the other Erasca Indemnified Parties harmless from and against any claims, losses, costs, damages, fees or expenses (including legal fees and expenses) (collectively, "**Losses**") to the extent resulting from any Third Party (not a Sublicensee or an Affiliate thereof) claim (including product liability claims) arising out of or otherwise relating to (i) the breach of any representations, warranties, obligations or covenants made by Katmai in this Agreement or (ii) the Exploitation of the Licensed Compound or Licensed Product by or on behalf

of Katmai, its Affiliates, or their respective Sublicensees (other than Erasca or its Sublicensees) prior to the Effective Date or if applicable after the Term. In the event of any such claim against the Erasca Indemnified Parties by a Third Party, the foregoing indemnity obligations shall be conditioned upon (i) Erasca promptly notifying Katmai in writing of the claim (***provided, however***, that any failure or delay to notify shall not excuse any obligations of Katmai except to the extent Katmai is actually prejudiced thereby) and (ii) Erasca granting Katmai sole management and control, at Katmai's sole expense, of the defense of the claim and its settlement (***provided, however***, that Katmai shall not settle any such claim without the prior written consent of Erasca (not to be unreasonably withheld, conditioned or delayed) if such settlement does not include a complete release from liability or if such settlement would involve Erasca undertaking an obligation (including the payment of money by a Erasca Indemnified Party), would bind or impair an Erasca Indemnified Party, or includes any admission of wrongdoing or that any intellectual property or proprietary right of Erasca or this Agreement is invalid, narrowed in scope or unenforceable), and (iii) the Erasca Indemnified Parties cooperating with Katmai (at Katmai's expense). If, based on the reasonable advice of counsel to the Erasca Indemnified Parties, the Erasca Indemnified Parties have separate defenses from Katmai or there is a conflict of interest between the Erasca Indemnified Parties and Katmai, then the Erasca Indemnified Parties shall be permitted, at their own expense, to retain counsel of its choosing to represent them in such action or proceeding.

(b) **By Erasca**. Erasca agrees to defend Katmai and its (and its Affiliates') directors, officers, employees and agents, together with the Investigators and the UC and its officers, employees and agents (collectively, the "**Katmai Indemnified Parties**") at Erasca's cost and expense, and will indemnify and hold Katmai and the other Katmai Indemnified Parties harmless from and against any Losses to the extent resulting from any Third Party claim (including product liability claims) arising out of or otherwise relating to (a) the breach of any representations, warranties, obligations or covenants in this Agreement, or (b) the Exploitation of the Licensed Compound or Licensed Products by or on behalf of Erasca or its Sublicensees during the Term. In the event of any such claim by the Katmai Indemnified Parties for indemnification, the foregoing indemnity obligations shall be conditioned upon (x) Katmai promptly notifying Erasca in writing of the claim (***provided, however***, that any failure or delay to notify shall not excuse any obligation of Erasca except to the extent Erasca is actually prejudiced thereby) and (y) Katmai granting Erasca sole management and control, at Erasca's sole expense, the defense of the claim and its settlement (***provided, however***, that Erasca shall not settle any such claim without the prior written consent of Katmai if such settlement does not include a complete release from liability or if such settlement would involve undertaking an obligation (including the payment of money by an Katmai Indemnified Party), would bind or impair an Katmai Indemnified Party, or includes any admission of wrongdoing or that any intellectual property or proprietary right of Katmai or this Agreement is invalid, narrowed in scope or unenforceable), and (z) the Katmai Indemnified Parties cooperating with Erasca (at Erasca's expense). If, based on the reasonable advice of counsel to the Katmai Indemnified Parties, the Katmai Indemnified Parties have separate defenses from Erasca or there is a conflict of interest between the Katmai Indemnified Parties and Erasca, then the Katmai Indemnified Parties shall be permitted, at Erasca's expense, to retain counsel of its choosing to represent them in such action or proceeding.

7.2 Limitation of Damages. IN NO EVENT SHALL EITHER PARTY BE LIABLE HEREUNDER TO THE OTHER PARTY FOR ANY PUNITIVE, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOST REVENUE, LOST PROFITS, OR LOST SAVINGS) HOWEVER CAUSED AND UNDER ANY THEORY, EVEN IF IT HAS NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. THE LIMITATIONS SET FORTH IN THIS SECTION 7.2 SHALL NOT APPLY WITH RESPECT TO (A) ANY BREACH OF ARTICLE 8 (*CONFIDENTIALITY*), (B) THE INTENTIONAL MISCONDUCT OR GROSS NEGLIGENCE OF A PARTY, OR (C) THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF EITHER PARTY UNDER THIS ARTICLE 7 (*INDEMNIFICATION*).

7.3 Insurance. At least sixty (60) days prior to the Initiation of any clinical trial by or on behalf of Erasca or its Sublicensees, Erasca shall at its own expense procure and maintain during the Term (and for three (3) years thereafter) insurance with a retroactive date of placement prior to or coinciding with the Effective Date in the following forms and amounts:

Commercial Form General Liability Insurance (contractual liability included) with minimum limits as follows:

Each Occurrence: $1,000,000;
Products/Completed Operations Aggregate: $5,000,000;
Personal and Advertising Injury: $1,000,000;
General Aggregate (commercial form only): $5,000,000; and
Worker's Compensation (as legally required in the jurisdiction in which Erasca and its Affiliates are doing business).

Notwithstanding the foregoing, no later than sixty (60) days before the anticipated date of First Commercial Sale of any Licensed Product, Erasca, at its sole cost and expense, will insure its activities in connection with any work performed hereunder and will obtain, keep in force, and maintain the following insurance: Commercial Form General Liability Insurance (contractual liability included) with minimum limits as follows:

Each Occurrence: $5,000,000;
Products/Completed Operations Aggregate: $10,000,000;
Personal and Advertising Injury: $5,000,000;
General Aggregate (commercial form only): $10,000,000; and
Worker's Compensation (as legally required in the jurisdiction in which Erasca and its Affiliates are doing business).

Erasca shall furnish Katmai with certificates of insurance evidencing compliance with all requirements of this Section 7.3. Such certificates will indicate both Katmai and the UC as an additional insured(s) and loss payee under the coverage described above in this Section 7.3 and include a provision that the coverage will be primary and will not participate with, nor will be excess over, any valid and collectable insurance or program of self-insurance maintained by Katmai or the UC. Katmai will promptly notify Erasca in writing of any claim or suit brought against it (or the UC) for which it (or the UC) intends to invoke the indemnification provisions of this Agreement. Erasca will keep Katmai informed of its defense of any claims pursuant to this Article 7 (*Indemnification*). Erasca shall provide Katmai with written notice at least thirty (30) days prior to the cancellation, non-renewal or a material change in such insurance which materially adversely affects the rights of Katmai or the UC hereunder.

8. CONFIDENTIALITY

8.1 Confidential Information.

(a) **Confidential Information**. Each Party ("**Disclosing Party**") may disclose to the other Party ("**Receiving Party**"), and Receiving Party may acquire during the course and conduct of activities under this Agreement, certain proprietary or confidential information of Disclosing Party in connection with this Agreement. The term "**Confidential Information**" will mean all information of any kind, whether in written, oral, graphical, machine-readable or other form, whether or not marked as confidential or proprietary, which are transferred, disclosed or made available by Disclosing Party or at the request of Receiving Party, including any of the foregoing of Third Parties. Confidential Information of Katmai will include without limitation any information disclosed by Katmai's members of the PAC with respect to other opportunities for the Parties to collaborate.

(b) **Restrictions**. During the Term and for ten (10) years thereafter, Receiving Party will keep all Disclosing Party's Confidential Information in confidence with the same degree of care with which Receiving Party holds its own confidential information (but in no event less than a commercially reasonable degree of care). Receiving Party will not use Disclosing Party's Confidential Information except in connection with the performance of its obligations and exercise of its rights under this Agreement. Receiving Party has the right to disclose Disclosing Party's Confidential Information without Disclosing Party's prior written consent, to the extent and only to the extent reasonably necessary, to Receiving Party's Affiliates and their employees, subcontractors, consultants or agents who have a need to know such Confidential Information in order to perform its obligations and exercise its rights under this Agreement and who are required to comply with the restrictions on use and disclosure in this Section 8.1(b). Receiving Party will use diligent efforts to cause those entities and persons to comply with the restrictions on use and disclosure in this Section 8.1(b). Receiving Party assumes responsibility for those entities and persons maintaining Disclosing Party's Confidential Information in confidence and using same only for the purposes described herein. Upon termination of the Agreement (except for circumstances where Erasca's license rights in the Licensed Know-How survive termination), Erasca shall promptly return or destroy all Confidential Information disclosed by or on behalf of Katmai within fifteen (15) days.

(c) **Exceptions**. Receiving Party's obligation of nondisclosure and the limitations upon the right to use the Disclosing Party's Confidential Information will not apply to the extent that Receiving Party can demonstrate that the Disclosing Party's Confidential Information: (i) was known to Receiving Party or any of its Affiliates prior to the time of disclosure; (ii) is or becomes public knowledge through no fault or omission of Receiving Party or any of its Affiliates or Sublicensees; (iii) is obtained by Receiving Party or any of its Affiliates from a Third Party under no obligation of confidentiality to Disclosing Party; or (iv) has been independently developed by employees, subcontractors, consultants or agents of Receiving Party or any of its Affiliates without the use of Disclosing Party's Confidential Information, as evidenced by contemporaneous written records.

(d) **Permitted Disclosures**. Receiving Party may disclose Disclosing Party's Confidential Information to the extent (and only to the extent) such disclosure is reasonably necessary in the following instances:

(i) in order to comply with applicable Law (including any securities law or regulation or the rules of a securities exchange) or with a legal or administrative proceeding;

(ii) in connection with prosecuting or defending litigation, Regulatory Approvals and other Regulatory Filings and communications, and filing, prosecuting and enforcing Patent Rights in connection with Receiving Party's rights and obligations pursuant to this Agreement; and

(iii) in connection with exercising its rights hereunder, to its Affiliates; potential and future collaborators (as to Erasca only, and including Affiliates and Sublicensees of Erasca); potential and permitted acquirers or assignees; and potential investment bankers, investors and lenders;

(iv) ***provided, however,*** that (1) with respect to Sections 8.1(d)(i) or 8.1(d)(ii), where reasonably possible, Receiving Party will notify Disclosing Party of Receiving Party's intent to make any disclosure pursuant thereto sufficiently prior to making such disclosure so as to allow Disclosing Party adequate time to take whatever action it may deem appropriate to protect the confidentiality of the information to be disclosed, and (2) with respect to Section 8.1(d)(iii), each of those named people and entities are required to comply with the restrictions on use and disclosure in Section 8.1(b) (*Restrictions*) (other than collaborators, investment bankers, investors and lenders, which must be bound prior to disclosure by commercially reasonable obligations of confidentiality).

8.2 Terms of this Agreement; Publicity.

(a) **Restrictions**. The Parties agree that the terms of this Agreement will be treated as Confidential Information of both Parties, and thus may be disclosed only to the extent within the exceptions in Section 8.1(c) (*Exceptions*) or as permitted by Section 8.1(d) (*Permitted Disclosures*). Except as required by Law, each Party agrees not to issue any press release or public statement disclosing information relating to this Agreement or the transactions contemplated hereby or the terms hereof without the prior written consent of the other Party not to be unreasonably withheld (or as such consent may need to be obtained in accordance with Section 8.2(b) (*Review*) or 8.3(a) (*Right to Publish*)).

(b) **Review**. In the event either Party (the "**Issuing Party**") desires to issue a press release or other public statement disclosing information relating to this Agreement or the transactions contemplated hereby or the terms hereof, the Issuing Party will provide the other Party (the "**Reviewing Party**") with a copy of the proposed press release or public statement (the "**Release**"). The Issuing Party will specify with each such Release, taking into account the urgency of the matter being disclosed, a reasonable period of time within which the Receiving Party may provide any comments on such Release (but in no event less than five (5) business days). If the Receiving Party provides any comments, the Parties will consult on such Release and work in good faith to prepare a mutually acceptable Release. Either Party may subsequently publicly disclose

any information previously contained in any Release issued consistent with the terms of this Section 8.2. Subject to restrictions on use of names in Section 8.2(c) (*Use of Names*), Erasca, in its sole discretion, may make disclosures relating to the development or commercialization of the Licensed Products, including the results of research or any clinical trial conducted by Erasca or any health or safety matter related to the Licensed Products.

(c) **Use of Names**. Erasca acknowledges that nothing contained in this Agreement will be construed as conferring any right to Erasca, its Affiliates, or its Sublicensees to use in advertising, publicity or other promotional activities any name of the Investigators or any name, trade name, trademark or other designation of the UC (including a contraction, abbreviation or simulation of any of the foregoing). The UC may list Erasca's name as a licensee of technology from the UC without further identifying the technology. Unless required by law or unless the required authorizations are obtained (contact adminvc@ucla.edu for more information), the use by Erasca of the name "The Regents of the University of California" or the name of any campus of the University of California in advertising, publicity or other promotional activities is expressly prohibited.

8.3 Publications.

(a) **Right to Publish**. Subject to the provisions of Sections 8.1 (*Confidential Information*), 8.2 (*Terms of this Agreement; Publicity*) and 8.3(b) (*Publications by the UC*), each Party shall have the right to publish with respect to Licensed Products in publications, and to make scientific presentations on Licensed Products.

(b) **Publications by the UC**. To the extent Katmai has the right to review and/or approve any publications made by the Investigators with respect to Licensed Compounds or Licensed Products, Katmai will provide to Erasca the same right and shall not take any action (whether to approve or comment thereon) without Erasca's prior written consent, which shall not be unreasonably withheld.

9. TERM AND TERMINATION

9.1 Term. The term of this Agreement (the "**Term**") shall commence on the Effective Date, and unless terminated earlier as provided in this Article 9 (*Term and Termination*), shall continue in full force and effect until expiration of all payment obligations under this Agreement. Upon such expiration (but not any earlier termination) of this Agreement, the licenses granted to Erasca by Katmai under this Agreement to Exploit the Licensed Compound and Licensed Products shall be fully paid-up and irrevocable.

9.2 Termination by Katmai.

(a) **Breach.** Katmai will have the right to terminate this Agreement in full upon delivery of written notice to Erasca in the event of any material breach by Erasca of any terms and conditions of this Agreement, ***provided, however***, that such termination will not be effective if such breach has been cured within ninety (90) days (or, solely for breach of Erasca's payment obligations, forty-five (45) days) after written notice thereof is given by Katmai to Erasca specifying in reasonable detail the nature of the alleged breach; ***provided, however***, that if such

breach of non-payment obligations is not capable of being cured within such ninety (90) day period, such ninety (90) day period will be extended for an additional ninety (90) days so long as the breaching Party uses reasonable efforts to cure such breach during such additional ninety (90) day period. Notwithstanding the foregoing, in the event Erasca's material breach places Katmai at reasonable risk of breach of the UC License Agreement, and Katmai has received a notice of breach of the UC License Agreement related to such material breach of this Agreement by Erasca, then Erasca's cure period in this Section 9.2(a) shall not extend beyond the date that is ten (10) days prior to the end of any applicable cure period under the UC License Agreement that is specified in such notice of breach from the UC to Katmai.

9.3 Termination by Erasca.

(a) **Breach**. Erasca will have the right to terminate this Agreement upon delivery of written notice to Katmai in the event of any material breach by Katmai of any terms and conditions of this Agreement; ***provided, however***, that such termination will not be effective if such breach has been cured within thirty (30) days after written notice thereof is given by Erasca to Katmai specifying in reasonable detail the nature of the alleged breach.

(b) **Discretionary Termination**. Provided that Erasca is in full compliance with the Agreement, Erasca will have the right to terminate this Agreement at will, effective sixty (60) days after delivery of written notice to Katmai thereof.

9.4 Termination Upon Bankruptcy. Either Party may terminate this Agreement if, at any time, the other Party shall (a) file in any court or agency pursuant to any statute or regulation of any state, country or jurisdiction, a petition in bankruptcy or insolvency or for reorganization or for an arrangement or for the appointment of a receiver or trustee of that Party or of its assets, (b) propose a written agreement of composition or extension of its debts, (c) be served with an involuntary petition against it, filed in any insolvency proceeding, and such petition has not been dismissed within sixty (60) days after the filing thereof, (d) propose or be a party to any dissolution or liquidation, (e) make an assignment for the benefit of its creditors or (f) admit in writing its inability generally to meet its obligations as they fall due in the general course.

9.5 Effects of Termination.

(a) Upon termination by either Party under Section 9.2 (*Termination by Katmai*) or 9.3 (*Termination by Erasca*) or 9.4 (*Termination Upon Bankruptcy*), all rights and licenses granted by Katmai to Erasca in Article 2 (*License Grant*) will terminate, and Erasca and its Sublicensees will cease all use of Licensed Know-How and Licensed Patents and all Exploitation of the Licensed Compounds and Licensed Products, except to the extent required hereunder.

(b) Upon termination by either Party under Section 9.2 (*Termination by Katmai*) or Section 9.3 (*Termination by Erasca*) or by Katmai under Section 9.4 (*Termination Upon Bankruptcy*), Erasca shall, upon the written request of Katmai, (i) [***], (ii) [***], (iii) [***], (iv) [***], and (v) wind down, at Erasca's expense (unless such termination is pursuant to Section 9.3(a) (*Breach*)), any ongoing clinical trials, manufacturing activities, and other related research and development activities involving Licensed Product consistent with applicable Law and medical and ethical standards, and applicable agreements with Third Party independent contractors

engaged by or on behalf of Erasca in connection with such activities. If Katmai requests the foregoing actions in subsections (i) through (iv) and unless the Agreement is terminated for Erasca's material breach of this Agreement, the Parties will negotiate in good faith the financial terms pursuant to which such actions shall be conducted, provided that Erasca's performance of such actions shall not be conditioned upon the conduct or completion of such negotiations. If the Parties do not agree upon such terms within sixty (60) days after Erasca receives such request from Katmai, then the Parties shall submit all matters that are not yet agreed by the Parties for resolution by "baseball" arbitration as follows: The arbitration shall be administered by JAMS in Los Angeles, California pursuant to its Comprehensive Arbitration Rules and Procedures, except that (i) the arbitrator's decision on such matters shall be based upon what is commonly referred to as the "[***]" approach, whereby the arbitrator may [***], and (ii) the arbitrator will establish a time line for submission of the Parties' positions on such matters and adopt such other procedures to enable him or her to issue a decision within sixty (60) days after he or she is appointed.

9.6 Survival. In addition to the termination consequences set forth in Section 9.5 (*Effects of Termination*), the following provisions will survive termination or expiration of this Agreement: Articles 1 (*Definitions*), 3 (*Fees, Royalties and Payments*), 7 (*Indemnification*), 8 (*Confidentiality*) and 10 (*Miscellaneous*) and Sections 4.4 (*Enforcement*) through 4.6 (*Recovery*) (inclusive) (with respect to any action initiated prior to such expiration or termination) and Section 6.3 (*Disclaimer*), Section 9.1 (last sentence, only upon expiration of the Term), Section 9.5 (*Effects of Survival*), and this Section 9.6. Termination of this Agreement is neither Party's exclusive remedy and neither termination nor expiration of the Agreement will relieve the Parties of any liability or obligation which accrued hereunder prior to the effective date of such termination or expiration. Neither termination nor expiration of this Agreement will preclude either Party from pursuing all rights and remedies it may have hereunder or at law or in equity with respect to any breach of this Agreement or prejudice either Party's right to obtain performance of any obligation. All other rights and obligations will terminate upon expiration of this Agreement.

10. MISCELLANEOUS

10.1 Entire Agreement; Amendment. This Agreement and all Exhibits attached to this Agreement constitute the entire agreement between the Parties as to the subject matter hereof. All prior and contemporaneous negotiations, representations, warranties, agreements, statements, promises and understandings with respect to the subject matter of this Agreement are hereby superseded and merged into, extinguished by and completely expressed by this Agreement, including without limitation the Mutual Confidentiality Agreement between the Parties dated January 1, 2020 (with all information exchanged thereunder to be deemed Confidential Information disclosed pursuant to this Agreement). None of the Parties shall be bound by or charged with any written or oral agreements, representations, warranties, statements, promises or understandings not specifically set forth in this Agreement. No amendment, supplement or other modification to any provision of this Agreement shall be binding unless in writing and signed by all Parties.

10.2 Section 365(n) of the Bankruptcy Code. All rights and licenses granted under or pursuant to any section of this Agreement are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of rights to "intellectual property" as defined under Section 101(35A) of the U.S. Bankruptcy Code to the extent permitted thereunder. The Parties shall retain and may fully exercise all of their respective rights and elections under the U.S. Bankruptcy Code. Upon the bankruptcy of any Party, the non-bankrupt Party shall further be entitled to a complete duplicate of (or complete access to, as appropriate) any such intellectual property, and such, if not already in its possession, shall be promptly delivered to the non-bankrupt Party, unless the bankrupt Party elects to continue, and continues, to perform all of its obligations under this Agreement.

10.3 Independent Contractors. The relationship between Erasca and Katmai created by this Agreement is solely that of independent contractors. This Agreement does not create any agency, distributorship, employee-employer, partnership, joint venture or similar business relationship between the Parties. Neither Party is a legal representative of the other Party, and neither Party can assume or create any obligation, representation, warranty or guarantee, express or implied, on behalf of the other Party for any purpose whatsoever. Each Party shall use its own discretion and shall have complete and authoritative control over its employees and the details of performing its obligations under this Agreement.

10.4 Governing Law; Jurisdiction. Any dispute, claim or controversy arising out of or relating to this Agreement or the breach, termination, enforcement, interpretation or validity thereof shall be submitted for resolution by a court of competent jurisdiction in the County of Los Angeles. This Agreement and its effect are subject to and shall be construed and enforced in accordance with the law of the State of California, without regard to its conflicts of laws, except as to any issue which depends upon the validity, scope or enforceability of any Licensed Patent, which issue shall be determined in accordance with the laws of the country in which such patent was issued.

10.5 Notice. All notices or communication required or permitted to be given by either Party hereunder shall be deemed sufficiently given if mailed by registered mail or certified mail, return receipt requested, or sent by overnight courier, such as Federal Express, to the other Party at its respective address set forth below or to such other address as one Party shall give notice of to the other from time to time hereunder. Mailed notices shall be deemed to be received on the third (3rd) business day following the date of mailing. Notices sent by overnight courier shall be deemed received the following business day.

If to Erasca:

Erasca, Inc.
10835 Road to the Cure #140
San Diego, CA 92121
Attention: Legal Department
Email: legal@erasca.com

If to Katmai:

Katmai Pharmaceuticals, Inc.

[***]
Attn: Bradley B. Gordon, President and CEO

With a copy to counsel (which shall not constitute notice):

Pillsbury Winthrop Shaw Pittman, LLP
12255 El Camino Real, Suite 300
San Diego, CA 92130
Attn: Richard Blaylock

10.6 Compliance with Law; Severability. Nothing in this Agreement shall be construed to require the commission of any act contrary to Law.

(a) **Compliance with Law**. If this Agreement or any associated transaction is required by Law to be either approved or registered with any Governmental Authority, Erasca will assume all legal obligations to do so. Erasca will notify Katmai if it becomes aware that this Agreement is subject to a United States or foreign government reporting or approval requirement. Erasca will make all necessary filings and pay all costs including fees, penalties and all other out-of-pocket costs associated with such reporting or approval process. Erasca agrees on behalf of itself, its Affiliates, and its Sublicensees to comply with all applicable Laws in performing its obligations hereunder and in its use, manufacture, sale or import of the Licensed Products. Erasca, its Affiliates, and its Sublicensees will observe all applicable Laws with respect to the transfer or provision of Licensed Products and related technical data to foreign countries, including, without limitation, the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations. Erasca on behalf of itself, its Affiliates, and its Sublicensees agrees to manufacture and use Licensed Products in compliance with applicable Laws of a particular country for Licensed Products made outside the particular country in which such Licensed Products are used, sold or otherwise exploited.

(b) **Severability**. If any one or more provisions of this Agreement is held to be invalid, illegal or unenforceable, the affected provisions of this Agreement shall be curtailed and limited only to the extent necessary to bring it within the applicable legal requirements and the validity, legality and enforceability of the remaining provisions of this Agreement shall not in any way be affected or impaired thereby.

10.7 Successors and Assigns. Neither this Agreement nor any of the rights or obligations created herein may be assigned by either Party, in whole or in part, without the prior written consent of the other Party, not to be unreasonably withheld, conditioned or delayed except that either Party shall be free to assign this Agreement (a) to an Affiliate of such Party (for so long as such Affiliate remains an Affiliate) provided that such Party shall remain liable and responsible to the other Party for the performance and observance of all such duties and obligations by such Affiliate, or (b) in connection with any merger, consolidation or sale of such Party or sale of all or substantially all of the assets of the Party that relate to this Agreement (a "**Sale Transaction**"),

without the prior consent of the non-assigning Party. If a Party **[***]**for the prevention or treatment of any Indication within the **[***]**Field, then at the option of such Party (or its successor in interest), such product (a) **[***]**, or (b) **[***]** with respect to its development and commercialization within the **[***]** Field. If such acquired Party is Erasca, and this Section 10.7 applies to a does not elect (a) through (c), but instead **[***]**, within **[***]** (**[***]**) year after the effective date of such**[***]** , then such Party (or its successor in interest) shall **[***]** ($**[***]**). This Agreement shall bind and inure to the benefit of the successors and permitted assigns of the Parties hereto. Any assignment of this Agreement in contravention of this Section 10.7 shall be null and void.

10.8 Sale Transaction or Katmai Acquisition. In the event of (a) a Sale Transaction, or (b) the acquisition by Katmai of all or substantially all of the business of a Third Party (together with any entities that were Affiliates of such Third Party immediately prior to such acquisition, an "**Katmai Acquiree**"), whether by merger, sale of stock, sale of assets or otherwise (an "**Katmai Acquisition**"), intellectual property rights of the acquiring party in a Sale Transaction, if other than one of the Parties to this Agreement (together with any entities that were Affiliates of such Third Party immediately prior to such Sale Transaction, a "**Third Party Acquirer**"), or the Katmai Acquiree, as applicable, shall not be included in the technology licensed hereunder or otherwise subject to this Agreement unless such Third Party Acquirer or Katmai (as applicable) agrees in writing to license any of such intellectual property rights in connection with this Agreement or any other Agreement into which they may enter pursuant to Section 2.5 (*Right of First Negotiation*) or Section 2.6 (*Initial Focus; Back-up Compounds*).

10.9 Waivers. A Party's consent to or waiver, express or implied, of any other Party's breach of its obligations hereunder shall not be deemed to be or construed as a consent to or waiver of any other breach of the same or any other obligations of such breaching Party. A Party's failure to complain of any act, or failure to act, by the other Party, to declare the other Party in default, to insist upon the strict performance of any obligation or condition of this Agreement or to exercise any right or remedy consequent upon a breach thereof, no matter how long such failure continues, shall not constitute a waiver by such Party of its rights hereunder, of any such breach, or of any other obligation or condition. A Party's consent in any one instance shall not limit or waive the necessity to obtain such Party's consent in any future instance and in any event no consent or waiver shall be effective for any purpose hereunder unless such consent or waiver is in writing and signed by the Party granting such consent or waiver.

10.10 No Third Party Beneficiaries. Except as expressly provided with respect to Katmai Indemnified Parties and Erasca Indemnified Parties in Article 7 (*Indemnification*), the UC in Sections 4.4(a) (*Erasca Enforcement*), 4.6 (*Recovery*), 7.3 (*Insurance*), and 8.2(c) (*Use of Names*), and Katmai's Affiliates and licensees, nothing in this Agreement shall be construed as giving any Person, other than the Parties hereto and their successors and permitted assigns, any right, remedy or claim under or in respect of this Agreement or any provision hereof.

10.11 Headings; Exhibits. Article and Section headings used herein are for convenient reference only, and are not a part of this Agreement. All Exhibits are incorporated herein by this reference.

10.12 Interpretation. Except where the context otherwise requires, wherever used, the singular shall include the plural, the plural the singular, the use of any gender shall be applicable to all genders and the word "or" is used in the inclusive sense (and/or). The term "including" (or cognates thereof) as used herein shall mean including (or the cognate thereof), without limiting the generality of any description preceding such term. The term "will" as used herein means "shall." All references to a "business day" or "business days" in this Agreement means any day other than a day which is a Saturday, a Sunday or any day banks are authorized or required to be closed in the United States. The language in all parts of this Agreement shall be deemed to be the language mutually chosen by the Parties. The Parties and their counsel have cooperated in the drafting and preparation of this Agreement, and this Agreement therefore shall not be construed against any Party by virtue of its role as the drafter thereof.

10.13 Force Majeure. Neither Party shall be held liable or responsible to the other Party, nor be deemed to have defaulted under or breached this Agreement, for failure or delay in fulfilling or performing any term of this Agreement to the extent, and for so long as, such failure or delay is caused by or results from such causes beyond the reasonable control of the affected Party as fire, floods, embargoes, power shortage or failure, acts of war (whether war be declared or not), insurrections, riots, terrorism, civil commotions, strikes, lockouts or other labor disturbances, acts of God, or any acts, omissions, or delays in acting by any Governmental Authority or the other Party; ***provided, however***, that the affected Party promptly notifies the other Party in writing (and continues to provide monthly status updates to the other Party for the duration of the effect); and ***provided further, however***, that the affected Party shall use its Commercially Reasonable Efforts to avoid or remove such causes of non-performance and to mitigate the effect of such occurrence, and shall continue performance with reasonable dispatch whenever such causes are removed.

10.14 Further Assurances. Each Party shall execute, acknowledge, and deliver such further instructions, and to do all such other acts, as may be necessary or appropriate in order to carry out the purposes and intent of this Agreement.

10.15 Counterparts. This Agreement may be executed in counterparts by a single Party, each of which when taken together shall constitute one and the same agreement, and may be executed through the use of facsimiles or .pdf or other electronically transmitted documents.

[*Signature page follows*]

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first set forth above.

ERASCA, INC.

By: /s/ Jonathan Lim
Name: Jonathan Lim
Title: President and CEO

KATMAI PHARMACEUTICALS, INC.

By: /s/ Brad Gordon
Name: Brad Gordon
Title: President, CEO

EXHIBIT A

LICENSED KNOW-HOW

[***]

EXHIBIT B

LICENSED PATENTS

[***]

EXHIBIT C

JCN068 STRUCTURE

[***]

EXHIBIT D

UC LICENSE AGREEMENT

(*See attached.*)

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

EXCLUSIVE LICENSE AGREEMENT

This exclusive license agreement ("**Agreement**") is made effective this **11th day of March, 2020** ("**Effective Date**"), by and between **The Regents of the University of California**, a California public corporation, having its statewide administrative offices at 1111 Franklin Street, 12th Floor, Oakland, CA 94607-5200 ("**The Regents**"), acting through The Technology Development Group of the University of California, Los Angeles ("**UCLA**"), located at **10889 Wilshire Boulevard, Suite 920, Los Angeles, CA 90095**-7191, and **Katmai Pharmaceuticals, Inc.** ("**Licensee**"), a Delaware corporation having a principal place of business at [***].

RECITALS

WHEREAS, The Regents own certain rights in the Patent Rights which claim, and Associated Technology which pertains to, invention(s) arising out of the laboratory of **Dr. David Nathanson**, among others, in the course of research at UCLA;

WHEREAS, Licensee is a "small entity" as defined in 37 CFR 1.27(a)(2) for the purposes of determining whether The Regents is eligible for reduced patent fees;

WHEREAS, The Regents and Licensee previously entered into the following agreements: Letter of Intent, dated Sep. 23, 2019, UC Control No. 2020-30-0214 (which for clarity was entered into by one of the founders of Licensee); and

WHEREAS, Licensee desires a license to the Patent Rights and Associated Technology and The Regents is willing to grant such license pursuant to the provisions herein below.

NOW, THEREFORE, in consideration of the mutual promises contained herein and for other good and sufficient consideration, the receipt and adequacy of which is hereby acknowledged, the parties agree as follows:

1. DEFINITIONS

As used in this Agreement, the following terms, whether used in the singular or plural, will have the following meanings:

1.1 "**Affiliate**" means any entity which, directly or indirectly, Controls Licensee, is Controlled by Licensee, or is under common Control with Licensee. "**Control**" means (i) having the actual, present capacity to elect a majority of the directors, or the power to direct greater than fifty percent (50%) of the voting rights entitled to elect directors, of such entity; or (ii) in any country where the local law will not permit foreign equity participation of a majority, the ownership or control (directly or indirectly) of the maximum percentage of such outstanding stock or voting rights permitted by local law. For clarity, an entity will be deemed an Affiliate of Licensee solely for the term during which it satisfies the foregoing definition.

1.2 "**Associated Technology**" means The Regents' interest in technical information, copyrightable works, processes, procedures, compositions, devices, tangible materials, methods, formulas, protocols, techniques, software, designs, drawings and/or data that satisfies all of the following: (i) it exists as of the Effective Date of this Agreement, (ii) it was created by the inventors of the Patent Rights, and (iii) it is expressly identified in **Appendix E** of this Agreement. For the avoidance of doubt, Associated Technology (a) need not be, and The Regents will have no obligation to keep Associated Technology, confidential or as a trade secret, and (b) will not include anything that is created after the Effective Date unless and until the parties enter into a written amendment to this Agreement to add such Associated Technology to **Appendix E** (such as for example results from a sponsored research agreement).

1.3 "**Commercially Reasonable Efforts**" means, with respect to any objective pertaining to the commercialization of a Licensed Product, the level of efforts and resources commonly used in the pharmaceutical industry by a company of similar size as Licensee (or Sublicensee as the case may be) to achieve such objective for a product that has a clinical indication and market potential similar to such Licensed Product and which is at a similar stage in development or product life as such Licensed Product taking into account, without limitation, commercial, legal and regulatory factors, target product profiles, product labelling, the regulatory environment and competitive market conditions and the sensitivity, specificity, and predictive values of Licensed Product in the Field of Use, and its proprietary position where such company is motivated to achieve such objective. For the avoidance of doubt, "Commercially Reasonable Efforts" shall not include (a) halting all commercialization of a Licensed Product for the purpose of pursuing another of Licensee's (or Sublicensee's as the case may be) products not covered by Regents' Patent Rights or (b) discontinuing all research, development, manufacturing, marketing and selling of such Licensed Product for a period of greater than twelve (12) consecutive months unless as a result of a Regulatory Cause.

1.4 "**Field of Use**" means all fields of use.

1.5 "**First Commercial Sale**" or "**FCS**" means the first sale of any Licensed Product by Licensee or a Sublicensee triggering payment of an Earned Royalty pursuant to this Agreement, following approval of its marketing by the appropriate governmental agency for the country in which the sale is to be made. When governmental approval is not required, "First Commercial Sale" means the first sale in that country.

1.6 "**Licensed Product**" means any product or service (i) whose manufacture, use, sale, offer for sale, importation, lease, disposition or provision would, absent the license granted hereunder, constitute infringement (including direct, contributory or inducement) of any Valid Claims of the Patent Rights or (ii) developed, made or provided through the use of Associated Technology.

1.7 "**Licensed Territory**" means all territories where Patent Rights exist or may come to exist, and with respect to Associated Technology worldwide.

1.8 "**Net Sales**" means the total amount received or otherwise accrued for accounting purposes (including fair market value of any non-cash consideration) by Licensee or Sublicensee on account of the sale, lease, provision, transfer, or other disposition of a Licensed Product to a customer, after deduction of the following in accordance with U.S. Generally Accepted Accounting Principles ("**U.S. GAAP**") to the extent separately itemized in the applicable invoice, and not otherwise reimbursed, and allowed: (a) cash, trade or quantity discounts, rebates (including rebates similar to Medicare or other government rebates), and reimbursements, (b) any shipping costs, (c) allowances or credits because of rejected or returned products, (d) sales, use, tariff, import/export duties or other excise taxes imposed on particular sales, and value added taxes, and (e) allowances for uncollectible amounts; provided that no particular deduction may be accounted for more than once in the calculation of Net Sales. For clarity, with respect to Licensed Products sold that are submitted for payment to an insurance company, Medicare, Medicaid or any other governmental or nongovernmental body for which less than 100% of the charged amount is actually paid to Licensee or its Sublicensees, the Earned Royalty shall be applied to the amount reimbursed less any applicable exclusions provided above.

1.9 If Licensee or Sublicensee makes any sales to any third party in a transaction in a given country that is not an arms'-length transaction, or is transferred to a third party without charge or at a discount, then Net Sales means the gross amount normally charged to other customers in arm's length transactions less the allowable deductions set forth above. The sale, provision, transfer, or other disposition of a Licensed Product between Licensee, its Affiliates and its Sublicensees when such Licensed Products are intended for subsequent sale to a customer shall not constitute Net Sales unless such Licensed Product is for end use by Licensee or such Affiliate or Sublicensee. In the case of transfers of Licensed Products between any of Licensee, Sublicensees, or their respective Affiliates for subsequent sale, lease or other transfer, then Net Sales will be the greater of the total amount invoiced or otherwise charged (including fair market value of any non-cash consideration) (i) for the transfer of the Licensed Products between Licensee, Sublicensees or Affiliates, as applicable, or (ii) for any subsequent sale of such Licensed Products in an arms'-length transaction.

i. "Combination Product" means a product that contains or uses a Licensed Product ("Licensed Component") and at least one other component ("Non-Licensed Component") that satisfies all the following conditions: (i) such Non-Licensed Component is not a Licensed Product, (ii) such Combination Product does not any infringe any other Valid Claims as compared to Licensed Component (iii) such Non-Licensed Component is sold separately and was individually approved by the FDA or an equivalent regulatory body, and (iv) the market price of such combined product is higher than the market price for such Licensed Component as a result of such combined product containing or using such Non-Licensed Component.

If a Licensed Product is sold (or Licensed Product service provided) in the form of a Combination Product, then the Net Sales of such Combination Product shall be determined as follows: Net Sales of such Combination Product shall be multiplied by the fraction A/(A+B), where A is the average list price of such Licensed Component (over the last 2 year period) when sold separately in the country of sale of the Combination Product, and B is the average list price of the Non-Licensed Component(s) (over the last 2 year period) in the same country.

If the Licensed Component is not sold separately, and the Non-Licensed Component is sold separately, or if neither Licensed or Non-Licensed Components of the Licensed Product are sold separately in the country of sale of the Licensed Product, the adjustment to Net Sales shall be determined by the parties in good faith prior to the date Licensee or a Sublicensee commences sale of such Licensed Product.

Notwithstanding the foregoing, in no event will the proration factor set forth above be less than one half (0.5); provided that if the relative importance or value of Licensed Component of the Combination Product is less than one-half, The Regents agrees to negotiate in good faith with Licensee with respect to a lower proration factor.

For clarity, in no event may Licensee apply the anti-royalty stacking provision set forth in Section 4.3 together with this Combination Product provision wherein the royalty owed to the third party with respect to the Licensed Product is in relation to the Non-Licensed Component. When both royalty stacking and Combined Product provisions are applied together, in no event will the owed royalty to the Regents be less than 50% than when absent such provisions.

ii. If Licensee believes a Licensed Product should be considered a Combination Product, but the Licensed Product does not satisfy the definition of Combination Product provided above, Licensee may provide The Regents with evidence supporting why such Licensed Product should be treated as a Combination Product; if the parties are unable to agree on an adjustment regarding such Licensed Product within thirty (30) days of The Regents' receipt of such supporting evidence, such Licensed Product will not be treated as a Combination Product. For clarity, if neither component is a Licensed Product on its own but their combination satisfies the Licensed Product definition, such a combination will not be treated as a Combination Product.

1.10 "**Patent Action**" means the preparation, filing, prosecution and maintenance of patent applications and patents in the Patent Rights, including reexaminations, interferences, oppositions, inventorship related matters, and any other ex parte or inter partes matters (e.g., inter partes review petitions) originating or conducted in a patent office.

1.11 "**Patent Rights**" means The Regents' interest in: (i) the patents and patent applications expressly identified in **Appendix A**; (ii) any divisions and continuations of any patent application or patent identified in subpart (i) above; (iii) any continuation-in-part applications of any patent application or patent identified in subparts (i) or (ii) above (but solely to the extent of those claims that are both entirely supported by the specification and entitled to the priority date of any patent application or patent identified in subparts (i) and (ii) above); (iv) any foreign counterparts of a patent application or patent identified in subparts (i)-(iii) above; and (v) any patents issuing from any patent application identified in subparts (i)-(iv), including reissues, substitutions and patent extensions.

1.12 "**Regulatory Cause**" means a delay in the completion of a regulatory stage Development Milestone that is directly caused by the FDA (or other applicable regulatory authority) either (a) putting a clinical hold on a clinical study involving a Licensed Product that Licensee or Sublicensee is developing pursuant to this Agreement, or (b) requiring additional data relating to a Licensed Product that Licensee or a Sublicensee is developing pursuant to this Agreement was outside that agreed upon with the FDA (or other applicable regulatory authority) in any pre-submission meeting in a material or significant respect and is based on FDA (or other applicable regulatory authority) guidelines or regulations and such guidelines or regulations were only implemented after initiation of a human clinical trial for such Licensed Product, provided, however, that with respect to (a)-(b), (i) such delay came to exist despite Licensee's use of Commercially Reasonable Efforts to avoid such delay, (ii) such delay is not due in any material respect to Licensee's actions or inactions that were counter to the guidance provided to Licensee or otherwise published by the FDA (or other applicable regulatory authority), and (iii) such delay is not due in any material respect to Licensee's failure to provide data to the FDA (or other applicable regulatory authority) in a form, amount and quality commonly used in the pharmaceutical industry or to undertake preclinical and clinical development in a form and of a quality that would be commonly used in the pharmaceutical industry.

1.13 "**Sublicensing Income**" means any consideration (including, without limitation, any licensing or optioning fees, or license maintenance fees, or milestone payments, and fair market value of any non-cash consideration) received by, or payable to, Licensee from any Sublicensee, under or on account of a Sublicense. Sublicensing Income excludes earned royalty payments but only to the extent such royalty payments are calculated using the same sales that generated payment of an Earned Royalty to The Regents pursuant to Section 4.3. Sublicensing Income also excludes (a) income received by Licensee as payment or reimbursement for research services

rendered after execution of the Sublicense at fair market value conducted by or for Licensee, including costs of materials, equipment or clinical testing to the extent documented, invoiced and actually paid, (b) amounts received by the Licensee as the purchase price, at fair market value, for equity securities (including stock of whatever class or series, and including the purchase price for warrants and the exercise price under such warrants, or as convertible debt, and the like) of the Licensee; and (c) reimbursements to the Licensee of out-of-pocket patent prosecution costs actually incurred by the Licensee (provided amounts received in excess of the Patent Costs Licensee has paid to The Regents pursuant to this Agreement will be treated as Sublicensing Income). For clarity, any amounts received in excess of fair market value (in relation to (a) and (b)) or the amount of costs actually incurred by Licensee (in relation to (c)) will be deemed to constitute Sublicensing Income.

The Regents acknowledges Licensee (or its Sublicensees) may enter into agreements or transactions with a Sublicensee at fair market value that are distinct and independent from the Sublicense they separately enter into with such Sublicensee, e.g., debt financing agreement ("**Independent Deal**"). So long as such Independent Deal does not dilute, divert, conceal or misrepresent the amount of consideration paid to the Licensee (or such Sublicensee) in consideration for a Sublicense, and is not in exchange for any right or license granted in relation to the Patent Rights, The Regents agree consideration received pursuant to such Independent Deal will not constitute Sublicensing Income.

1.14 "**Valid Claim**" means (a) any issued claim in the Patent Rights that has not irrevocably: (i) expired; (ii) been disclaimed, cancelled or superseded, or if cancelled or superseded, has not been reinstated; and (iii) been revoked, held invalid, or otherwise declared unenforceable or not allowable by a tribunal or patent authority of competent jurisdiction over such claim in such country, in all cases from which no further appeal has or may be taken, and (b) any claim of a pending patent application in the Patent Rights that has not been irrevocably abandoned or finally rejected without the possibility of appeal or re-filing, provided that a claim within a patent application that has been pending for more than [***] from the date of issuance of the first substantive office action (e.g., a restriction requirement will not be deemed substantive) received with respect to such claim on a per country basis shall no longer be a Valid Claim unless and until such claim becomes an issued claim of an issued patent, in which case such claim will be deemed a Valid Claim for the purposes of this Agreement retroactively from the date it ceased being a Valid Claim.

2. GRANT

2.1 License. Subject to the limitations and other terms and conditions set forth in this Agreement, including the limitations outlined in Section 2.2 below, The Regents hereby grants to Licensee an exclusive license under the Valid Claims of the Patent Rights in the Licensed Territory, and a nonexclusive license with respect to the Associated Technology, to make, use, sell, offer for sale and import Licensed Products in the Field of Use.

The licenses granted to Licensee hereunder shall automatically extend to Licensee's Affiliates, but only during the period such entity satisfies the definition of Affiliate. As a licensee of Patent Rights under this Agreement, Affiliates shall have all of the same rights and obligations, financial and otherwise, that Licensee has under this Agreement. Acts, omissions and liabilities of an Affiliate are considered to be those of Licensee under this Agreement and Licensee is responsible and liable for all such acts, omissions and liabilities, including without limitation payment to The Regents of royalties or other consideration due to The Regents hereunder.

2.2 License Conditions. The license granted in Section 2.1 is subject to the following:

A. The Regents expressly reserves the right for itself and other nonprofit and academic research institutions to use Patent Rights and Associated Technology for (i) educational and non-commercial research purposes (which shall be construed to include clinical research and research sponsored by commercial entities), and (ii) to publish results arising therefrom. For clarity, so long as Licensee's license to the Patent Rights remains exclusive, The Regents will not have the right to grant a license to the Patent Rights to another commercial entity that conflicts with the license granted to Licensee pursuant to Section 2.1.

B. The Regents' grant to the U.S. Government of a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the invention claimed by the Patent Rights throughout the world. Licensee agrees (and will require all Sublicensees to agree in writing) that, unless a valid waiver is obtained from the applicable funding agency at Licensee's written request, Licensee's exclusive right to use or sell any Licensed Products in the United States is subject to the obligation that any Licensed Products will be manufactured substantially in the United States, to the extent required by 35 U.S.C § 204 and applicable regulations of Chapter 37 of the Code of Federal Regulations.

3. SUBLICENSES

3.1 Permitted Sublicensing. The Regents also grants to Licensee the right to sublicense to third parties through four tiers, provided that Licensee may request that The Regents approve additional tiers, which approval will not be unreasonably withheld, and any Sublicense granted between Licensee and its Affiliates or independent contractors, including contract research, development and manufacturing organizations (CRO's, CMO's), will not count as a "tier" for the purposes of calculating the four-tier limitation) the rights licensed to Licensee hereunder so long as Licensee's rights remain exclusive (each, a "**Sublicense**" and each such third party that receives a Sublicense "**Sublicensee**"). All Sublicenses must be in writing and will be subject to, and contain terms consistent with, the terms in this Agreement, including, without limitation, the provisions contained in Articles 2.2 (License Conditions), 3 (Sublicenses), 4.4 (Validity Challenge), 7 (Books and Records), 9 (Use of Names and Trademarks), 10 (Limited Warranty and Liability), 12 (Patent Marking), 13 (Patent Infringement), 14 (Indemnification), 18 (Compliance with Laws), etc. For clarity, Licensee will be obligated to pay Earned Royalties on its Sublicensees' Net Sales irrespective of whether its Sublicensees pay royalties to Licensee. For the purposes of this Agreement, the operations of all Sublicensees will be deemed to be the operations of Licensee, for which Licensee will be responsible and liable.

3.2 Sublicense Requirements. Licensee must provide The Regents with a copy of each Sublicense issued, including any agreements and amendments executed in relation thereto, within thirty (30) days of its execution, and shall collect and guarantee payment of all payments, due to The Regents as a result of such Sublicenses.

3.3 Sublicenses Upon Termination. If this Agreement is terminated for any reason, at the option of the applicable Sublicensee, all outstanding Sublicenses not in default will be assigned by Licensee to The Regents (to the extent The Regents is legally, contractually and, per its policies (is able to accept such assignment (the phrase "policies" understood as broad, Regents-wide restrictions on assignments to certain classes of companies) provided that such assignment shall not place the Regents in a conflict of commitment**). Prior to any such assignment such Sublicensees shall furnish to The Regents the completed contact information form attached hereto as **Appendix C**. The assigned Sublicenses will remain in full force and effect with The Regents as the licensor or sublicensor instead of Licensee, but the duties of The Regents under the assigned Sublicenses will not be greater than the duties of The Regents under this Agreement, and the rights of The Regents under the assigned

Sublicenses will not be less than the rights of The Regents under this Agreement, including all financial consideration and other rights of The Regents. The Regents may, at The Regents' sole discretion, amend such outstanding Sublicenses to contain the terms and conditions found in this Agreement. **Notwithstanding the phrase "contractually" or "per its policies," if the Sublicensee is a reputable pharmaceutical or biopharmaceutical company whose stock is traded on a public exchange in either the U.S. or Europe and who had either annual worldwide revenues of at least one hundred million dollars ($100,000,000) in the calendar year prior to the calendar year in which such assignment is to take place or unrestricted capital of at least two hundred million dollars ($200,000,000) as of the date of assumption, then The Regents agree that assumption of the applicable Sublicense will not be withheld on this basis alone. For the avoidance of doubt, Licensee may also request in writing that The Regents pre-approve a given proposed Sublicensee as constituting an entity that The Regents would be able to accept per this provision (such assignee a "**Pre-Approved Assignee**"), and The Regents may, in its sole disretion, agree to provide such written pre-approval to Licensee.

4. CONSIDERATION

4.1 License Fee. In partial consideration for the License, Licensee will pay to The Regents a license issue fee of [***] within sixty (60) days of the Effective Date. This fee is non-refundable and is not an advance against royalties.

4.2 License Maintenance Fee. Licensee must pay to The Regents the license maintenance fee set forth below beginning on the [***]-year anniversary date of the Effective Date and continuing annually on each anniversary date of the Effective Date ("**License Maintenance Fee**") until Licensee achieves its First Commercial Sale and commences paying Minimum Royalties hereunder. License Maintenance Fees are non-refundable and are not an advance against royalties.

[***]	[***]
[***]	[***]

4.3 Earned Royalty. Licensee must pay to The Regents the following royalty for the corresponding Net Sales amounts calculated annually (each an "**Earned Royalty**"):

Net Sales (applied on a per calendar year basis)	**Royalty rate**
Up to [***]	[***]
Between [***] and [***]	[***]
Between [***] and [***]	[***]
Above [***]	[***]

For clarity, the Net Sales taken into account for royalty rate tier determination are with respect to total global amount of Net Sales. For example, if global Net Sales exceed One Hundred Million Dollars in a calendar year, Net Sales above that amount will incur a higher royalty rate, regardless of where the sale has occurred.

This royalty rate shall be reduced to [***] of Net Sales with respect to Licensed Products that are Licensed Products per Section 1.6(ii), but are not Licensed Products per Section 1.6(i). Earned Royalties hereunder shall be computed on a quarterly basis for the quarters ending March 31st, June 30th, September 30th, and December 31st of each calendar year and shall be due and payable at the same time the royalty reports are due under Section 6.2 for such quarter.

If Licensee (or any Sublicensee or any Affiliate, as applicable) after the Effective Date (and for clarity not with respect to any third party licenses it has executed prior to the Effective Date) is obligated to pay a non-Affiliate third party (other than The Regents) royalties on net sales ("Third Party Royalty") in consideration for patent rights owned or controlled by such non-Affiliate third party without a license to which Licensee (or a Sublicensee, or an Affiliate as applicable) may in Licensee's (or such Sublicensee's or Affiliate's, as applicable) judgment reasonably be considered to infringe or misappropriate such third party intellectual property rights in order to use or practice the Patent Rights, then Licensee will have the right, upon Licensee's (or a Sublicensee's, or an Affiliate's as applicable), execution of a license with such third party for such third party intellectual property rights, to credit fifty percent (50%) of any earned royalty payment made to such third party in any given year in consideration for such third party intellectual property rights, against the Earned Royalty due The Regents under this Agreement, provided that:

a) The sum of such Third Party Royalty rate and the Earned Royalty rate set forth in this Agreement is equal to or greater than [***] of Net Sales in the affected portion of the applicable Licensed Territory;

b) On an ongoing basis and prior to reduction of any Earned Royalty due The Regents under this Agreement for a given calendar quarter, Licensee first provides written evidence to The Regents of Licensee's (or any Sublicensee's, or Affiliate's as applicable), royalty obligations to such third party for such calendar quarter demonstrating that such royalty obligation is in consideration for patent rights owned or controlled by such non-Affiliate third party without a license to which Licensee (or any Sublicensee, or Affiliate of Licensee or any Sublicensee as applicable), may reasonably be considered to infringe or misappropriate such third party patent rights in the manufacture, use, import, offer for sale, or sell of a Licensed Product; and

c) In no event shall royalties or other amounts due to The Regents under this Agreement in any reporting period be so reduced to less than [***] of the amount that would otherwise be due The Regents under this Agreement; and

d) In no event may may Licensee apply the anti-royalty stacking provision set forth in this Article 4.3 of this Agreement to the Net Sales of a Licensed Product wherein the royalty owed to the third party with respect to such Licensed Product is in relation to the Combination Product Component of the Licensed Product.

4.4 Validity Challenge. If Licensee or a Sublicensee, itself or through a third party, institutes any proceeding that contests the validity of any Patent Right during the term of this Agreement, Licensee agrees to pay to The Regents, directly and not into any escrow or other account, all royalties and other amounts due in view of Licensee's and its Sublicensees' activities under this Agreement during the period of challenge and The Regents' attorneys fees in defending such action. Should the outcome of such contest determine that any challenged patent claim is valid, Licensee (or its Sublicensee, as applicable) will thereafter, and for the remaining term of this

Agreement, pay a royalty rate of [***] the royalty rate specified above and the entirety of The Regents' legal (including attorney) fees and costs incurred during such proceeding. For clarity, in the case wherein a Sublicensee challenges the validity of the Patent Rights, so long as Licensee did not directly or indirectly induce, encourage, or otherwise assist such Sublicensee in its challenge of the Patent Rights, then Licensee's royalty rate will not be tripled per the foregoing sentence and Licensee will not be obligated to pay for The Regents' attorneys fees in defending such action against a Sublicensee (provided that, if the challenging Sublicensee fails to do so Licensee must terminate the applicable Sublicense).

4.5 Minimum Annual Royalty. Licensee must pay to The Regents the following minimum annual royalties ("**Minimum Annual Royalties**") on or before February 28 of each calendar year ("**CY**") following the calendar year in which Licensee achieves a First Commercial Sale and continuing for the remaining term of this Agreement thereafter. The Minimum Annual Royalty will be credited against the Earned Royalty due and owing with respect to Net Sales made during the calendar year in which such Minimum Annual Royalties were paid.

[***]	[***]
[***]	[***]

4.6 Sublicensing Income. Licensee will pay to The Regents the following shares of all Sublicensing Income:

(i) [***] of all Sublicensing Income received with respect to any Sublicenses executed prior to the first human patient being dosed with a Licensed Product in a phase 1 clinical trial;

(ii) [***] of all Sublicensing Income received with respect to any Sublicenses executed concurrently with or after the first human patient is dosed in a phase 1 clinical trial but before the first patient is dosed with a Licensed Product in a phase 2 clinical trial; and

(iii) [***] of all Sublicensing Income received with respect to any Sublicenses executed concurrently with or after the first human patient is dosed with a Licensed Product in a phase 2 clinical trial.

Sublicensing Income may not be prorated when the Patent Rights are bundled with other intellectual property, without The Regents' prior written consent. For the avoidance of doubt, all payments and consideration that Licensee or a Sublicensee receives as a result of its exercise of its rights to the Patent Rights will be accounted for by Licensee either in the form of an Earned Royalty under Section 4.3 or as Sublicensing Income under this Section

4.7 Milestone Payments. For each Licensed Product, Licensee must make the following payments ("**Milestone Payments**") to The Regents within thirty (30) days of Licensee (or its Affiliate or Sublicensee) achieving the Development Milestone indicated below. For purposes of clarity such Milestone Payments are due from Licensee irrespective of whether the associated Development Milestone listed below was reached by Licensee itself or by a Sublicensee or by a third party acting on behalf of Licensee or a Sublicensee.

(i) [***] upon achieving Development Milestone defined by Section 5.2.D.

(ii) [***] upon achieving the Development Milestone defined by Section 5.2.E.

(iii) [***] upon approval of Licensed Product by EMA.

4.8 Payment Terms. All consideration due The Regents will be payable and will be made in United States dollars by check payable to "The Regents of the University of California" or by wire transfer to an account designated by The Regents, provided The Regents may assign its interest in any consideration it is to receive pursuant to this Agreement to another entity. Licensee is responsible for all bank or other transfer charges. When Licensed Products are sold for monies other than United States dollars, the Earned Royalties and other consideration will first be determined in the foreign currency of the country in which such Licensed Products were sold and then converted into equivalent United States dollars. The exchange rate will be the average exchange rate quoted in the *Wall Street Journal* during the last thirty (30) days of the reporting period.

(i) **Taxes**. Any tax for the account of The Regents required to be withheld by Licensee under the laws of any foreign country must be promptly paid by Licensee for and on behalf of The Regents to the appropriate governmental authority. Licensee will use its best efforts to furnish The Regents with proof of payment of any tax. Licensee is responsible for all bank transfer charges. All payments made by Licensee in fulfilment of The Regents' tax liability in any particular country will be credited against fees or royalties due The Regents for that country.

(ii) **Interest**. In the event that monies are not received by The Regents when due, Licensee will pay to The Regents interest at a rate of ten percent (10%) simple interest per annum. Such interest will be calculated from the date payment was due until actually received by The Regents. Such accrual of interest will be in addition to and not in lieu of, enforcement of any other rights of The Regents due to such late payment.

4.9 Participation Rights. If Licensee proposes to sell any equity securities or securities that are convertible into equity securities of Licensee, then The Regents and/or its Assignee (as defined below) will have the right to purchase up to [***]of the securities issued in each offering on the same terms and conditions as are offered to the other purchasers in each such financing. Licensee will provide thirty (30) days advance written notice of each such financing, including reasonable detail regarding the terms of the financing. The term "Assignee" means (a) any entity to which The Regents' participation rights under this Section have been assigned either by The Regents or another entity, or (b) any entity that is controlled by The Regents. This paragraph shall survive the termination of this Agreement.

4.10 Equity. As additional consideration for this Agreement, Licensee shall, within thirty (30) days of The Regents' execution and delivery to Licensee of a Stock Issuance Agreement in substantially the form attached hereto as Appendix D, issue and deliver to The Regents a number of shares of common stock of Licensee as set forth in the Stock Issuance Agreement.

4.11 Reimbursement for material transfer. Licensee will also reimburse The Regents for any reasonable out of pocket costs incurred in relation to preparing and delivering any materials constituting a part of Associated Technology within thirty (30) days of receipt of an invoice from The Regents.

4.12 As part of its public mission to bring products to the marketplace, UCLA strives to enable underserved populations, which have limited access to adequate quantities of medical innovations arising from UCLA's laboratories, to have access to these innovative products. Licensees are encouraged to consider these populations' interests when marketing and selling Licensed Products.

5. COMMERCIAL DILIGENCE

5.1 Development of Licensed Products. Licensee, upon execution of this Agreement, will use Commercially Reasonable Efforts to (a) diligently proceed with the development and manufacture (directly or through a contracted third party) of Licensed Products and (b) after obtaining applicable regulatory approval, market and sell the Licensed Products in quantities sufficient to meet the market demands therefor. Licensee or a Sublicensee will use Commercially Reasonable Efforts to obtain all necessary governmental approvals in each country where Licensed Products are manufactured, used, sold, offered for sale or imported.

5.2 Development Milestones. On or before the dates indicated below, Licensee will achieve each of the following development milestones with respect to a Licensed Product ("**Development Milestones**"). If Licensee fails to achieve a Development Milestone by the deadline set forth below, then The Regents has the right and option, at its sole discretion, to either terminate this Agreement or reduce Licensee's exclusive license to a nonexclusive license, under the terms set forth in Section 8 (LIFE OF THIS AGREEMENT) including The Regents obligation to first provide notice and the opportunity to cure as specified in Section 8.4. This right, if exercised by The Regents, supersedes the rights granted in Section 2 (GRANT).

A. Submit to the U.S. Food and Drug Administration (FDA) (or other applicable regulatory authority) an Investigational New Drug application for a Licensed Product by [***] .

B. Dose a first human patient in a phase 1a clinical trial by [***].

C. Dose a first human patient in a phase 1b or phase 2 clinical trial by [***].

D. Dose a first human patient in a phase 3 clinical trial by [***].

E. Receive FDA (or other applicable regulatory authority) approval of Licensed Product by [***].

F. Achieve a First Commercial Sale of a Licensed Product within [***] after receipt of FDA approval.

If the completion of any of the Development Milestones above is delayed beyond the corresponding deadline solely because of the existence of a Regulatory Cause, and Licensee sends to The Regents a request in writing for an extension that sets forth the basis for the delay and provides copies of documents and correspondence from the FDA supporting Licensee's assertion that a Regulatory Cause exists, then The Regents will consider in good faith consenting, which consent will not be unreasonably withheld, to an extension of such Development Milestone once for a maximum of a [***] , or so long as such Regulatory Cause exists, whichever is shorter. Notwithstanding the foregoing, however, if Licensee provides The Regents with a written representation from its legal counsel that such Regulatory Cause would similarly prevent any other potential licensee of the Patent Rights from further developing Licensed Products, then so long as Licensee is in good standing with respect to its obligations owed hereunder and, in good faith, requests an extension, The Regents agrees to extend such [***] cap to a total of [***], which may be (upon request from Licensee) further extended by The Regents in its sole discretion.

If the completion of any of the Development Milestones above is delayed beyond the corresponding deadline solely because of negative study results pertaining to the safety or efficacy of a Licensed Product, and Licensee (or its Sublicensee) elects to terminate development of a Licensed Product and restart development using a backup compound (**"Backup Cause"**), then upon a written request by Licensee to The Regents setting forth the basis for the delay, the parties agree to negotiate in good faith for a period of [***]to amend this Agreement with a new Development Milestone timeline ,usual and customary for the development of drug candidates of a comparable drug class and for a pharmaceutical or biopharmaceutical company of Licensee's or Sublicensee's comparable resources and expertise.

If the Licensee in unable to meet a due Development Milestone for any reason other than Regulatory Cause, Licensee may extend the Development Milestones deadlines set forth above in [***] increments, but not more than [***]in total across all Development Milestones, by making a [***] to The Regents for the first [***] Development Milestones deadline extension, and [***] payment for the [***]each, with the [***]extension being the last allowable extension (each such milestone extension a "**Paid Milestone Extension**"). In the event of any extension, the deadlines for meeting any later occurring Development Milestones will be similarly extended.

6. PROGRESS AND ROYALTY REPORTS

6.1 Progress Reports. Beginning on September 30 2020, and continuing semiannually thereafter, Licensee will complete a progress report form. In addition to and conjunction with such completed form, Licensee will provide a detailed written report to The Regents conveying Licensee's (and any Sublicensees') activities related to this Agreement. Such report will include information sufficient to enable The Regents to satisfy reporting requirements of the U.S. Government and to ascertain progress by Licensee toward meeting this Agreement's diligence requirements set forth in Section 5 (Commercial Diligence). Each report will contain at least the following information: (a) progress toward commercialization of Licensed Products, including work completed, (b) key scientific discoveries, (c) summary of work in progress, (d) current schedule of anticipated events or milestones, (e) market plans for introduction of Licensed Products, and (f) significant corporate transactions involving Licensed Products. Within thirty (30) days of The Regents' request, Licensee will provide The Regents sufficient documented evidence from its (or its Sublicensees, as applicable) books and records to sufficiently support any assertions made by Licensee in its progress reports.

6.2 Royalty Reports. Beginning with the First Commercial Sale and continuing for the life of this Agreement, Licensee will make quarterly royalty reports to The Regents on or before each February 28, May 31, August 31 and November 30 of each year. Each royalty report will cover Licensee's most recently completed calendar quarter and will at least the information identified in the Royalty Report attached hereto as **Appendix B**.

6.3 Entity Status. Licensee will keep The Regents informed of the large/small business entity status (as defined by the United States Patent and Trademark Office) of itself and its Sublicensees.

7. BOOKS AND RECORDS

7.1 Accounting. Licensee must keep, and will cause its Sublicensees to keep, accurate financial and development books and records showing all Licensed Products in development, manufactured, used, sold, leased, transferred, provided, or otherwise disposed of, and any other records necessary to affirm compliance with the terms of this Agreement. Books and records must be preserved for at least six (6) years from the date of the royalty payment to which they pertain.

7.2 Auditing. Books and records kept in accordance with Section 7.1 must be open to inspection by an accounting firm selected by The Regents at reasonable times and at a U.S. location, no more than one time in any twelve (12) month period, and solely to determine the accuracy of the royalty reports and other amounts owed pursuant to this Agreement. The Regents will bear the fees and expenses of examination but if an error in royalties of more than seven percent (7%) of the total royalties due for any year is discovered in any examination then Licensee will bear the fees and expenses of that examination and will remit such underpayment to The Regents within thirty (30) days of the examination results.

8. LIFE OF THIS AGREEMENT

8.1 Term. Unless otherwise terminated by operation of law, Section 8.2 (Bankruptcy), or by acts of the parties in accordance with the terms of this Agreement, this Agreement will remain in effect with respect to the Patent Rights from the Effective Date until the expiration or abandonment of the last of the Patent Rights licensed

hereunder with respect to the Patent Rights ("**Patent Rights Term**"), and with respect to the Associated Technology from the Effective Date until the earlier of (i) twenty (20) years after the FCS of a Licensed Product or (ii) ten (10) years after the end of the Patent Rights Term ("**Associated Technology Term**"). The termination or expiration of this Agreement will not relieve Licensee of its obligation to pay any fees, royalties or other payments owed to The Regents at the time of such termination or expiration and will not impair any accrued right of The Regents, including the right to receive Earned Royalties in accordance with Section 4 (Consideration). Licensee may terminate its obligations under this Agreement with respect to Associated Technology prior to the end of the Associated Technology Term only if it certifies in writing that it has destroyed and ceased all use of the Associated Technology, as well as sale or use of any products or results incorporating and/or made through the use of the Associated Technology. Upon natural expiration (i.e., not in the case of earlier termination) of the end of the Associated Technology Term, and so long as Licensee is in good standing with respect to its obligations under this Agreement, Licensee's license to the Associated Technology granted pursuant to Section 2.1 will convert to paid-up and royalty free.

8.2 Bankruptcy. In the event of a bankruptcy or insolvency, assignment of this Agreement is only permitted to a party that can provide adequate assurance of future performance, including diligent development and sales of Licensed Product.

8.3 Surviving Provisions. Any termination or expiration of this Agreement will not affect the rights and obligations set forth in at least the following Sections, as well as any other provisions which by their nature would be reasonably expected to survive termination: Sections 1 (Definitions); 3.3 (Sublicense Termination); 4.10 (Equity); 7 (Books and Records); 8.7 (Grant Back); 9 (Use of Names and Trademarks); 10 (Limited Warranty and Liability); 14 (Indemnification); 17 (Governing Law); and 19 (Confidentiality).

8.4 Termination by The Regents. If Licensee fails to perform or violates any term of this Agreement or fails to timely pay any amount when due then The Regents may give written notice of default ("**Notice of Default**") to Licensee. If Licensee fails to repair the default within ninety (90) days of the effective date of Notice of Default, The Regents may terminate this Agreement and its licenses by a second written notice ("**Notice of Termination**"). If a Notice of Termination is sent to Licensee, this Agreement will automatically terminate on the effective date of that notice.

8.5 Termination by Licensee. Licensee may terminate this Agreement at any time by providing a notice of termination to The Regents with a statement explaining the reason for termination, which termination will be effective sixty (60) days from the date such termination notice is sent by Licensee.

8.6 Disposition of Licensed Products on Hand Upon Termination. Upon termination of this Agreement, unless this Agreement was terminated by The Regents based on Licensee's failure to timely pay financial obligations owed pursuant to this Agreement, Licensee may continue to sell any previously made Licensed Products during the six (6) month period immediately following the effective date of the termination of this Agreement; provided that, in such case, Licensee must continue to fulfill all obligations associated therewith as if this Agreement had not terminated, including the obligation to pay Earned Royalties on the sale of such Licensed Products and submit royalty reports per the due dates required under this Agreement.

8.7 Grant Back. Upon termination of this Agreement by The Regents for cause as a result of Licensee's bankruptcy or insolvency or because Licensee ceases to exist, Licensee shall grant The Regents a non-exclusive, irrevocable, perpetual, fully paid-up, sublicensable, worldwide license to all inventions, products, materials, methods, processes, techniques, know-how, data and information discovered or developed in the course of or arising from Licensee's development and commercialization of the Patent Rights ("**Developments**") under this Agreement, but solely to the extent Licensee is legally and contractually able to grant such a license and use of such Developments is necessary in order to practice the Valid Claims of the Patent Rights.

9. USE OF NAMES AND TRADEMARKS

9.1 Use of Name. Nothing contained in this Agreement will be construed as conferring any right to either party to use in advertising, publicity or other promotional activities any name, trade name, trademark or other designation of the other party (including a contraction, abbreviation or simulation of any of the foregoing). The Regents may list Licensee's name as a licensee of technology from The Regents without further identifying the technology. Unless required by law or unless the required authorizations are obtained (contact adminvc@ucla.edu for more information), the use by Licensee of the name "The Regents of the University of California" or the name of any campus of the University of California in advertising, publicity or other promotional activities is expressly prohibited.

10. LIMITED WARRANTY AND LIABILITY

10.1 The Regents warrants to Licensee that it has the lawful right to grant this license. Except as expressly set forth in this Agreement, this license and the associated Patent Rights and Licensed Products and Associated Technology are provided by The Regents **WITHOUT WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. THE REGENTS MAKES NO EXPRESS OR IMPLIED REPRESENTATION OR WARRANTY THAT USE OR COMMERCIALIZATION OF THE PATENT RIGHTS OR LICENSED PRODUCTS OR ASSOCIATED TECHNOLOGY WILL NOT INFRINGE ANY PATENT, COPYRIGHT, TRADEMARK OR OTHER RIGHTS**.

10.2 This Agreement does not express or imply (a) a warranty or representation as to the validity, enforceability, or scope of any Patent Rights or Associated Technology; (b) a warranty or representation that anything made, used, sold, offered for sale, imported or otherwise exploited under any license granted in this Agreement is or will be free from infringement of patents, copyrights, or other rights of third parties; (c) an obligation on behalf of The Regents to bring or prosecute actions or suits against third parties for patent infringement; (d) by implication, estoppel or otherwise, confer any license or rights under any patents or other rights of The Regents other than Patent Rights, regardless of whether such patents are dominant or subordinate to Patent Rights; or (e) obligate The Regents to furnish any advancements, developments, or other improvements to the Patent Rights which are not entitled to the priority dates of Patent Rights, or know-how, technology or information not provided in Patent Rights or Associated Technology.

10.1 OTHER THAN LICENSEE'S OBLIGATION UNDER SECTION 14 (INDEMNIFICATION), NEITHER PARTY WILL BE LIABLE TO THE OTHER PARTY FOR ANY LOST PROFITS, COSTS OF PROCURING SUBSTITUTE GOODS OR SERVICES, LOST BUSINESS, ENHANCED DAMAGES FOR INTELLECTUAL PROPERTY INFRINGEMENT OR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR OTHER SPECIAL DAMAGES SUFFERED BY THE OTHER PARTY (AND IN THE CASE OF LICENSEE, BY ITS SUBLICENSEE AND ITS AFFILIATES)ARISING OUT OF OR RELATED TO THIS AGREEMENT FOR ALL CAUSES OF ACTION OF ANY KIND (INCLUDING TORT, CONTRACT, NEGLIGENCE, STRICT LIABILITY AND BREACH OF WARRANTY) EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE REGENTS WILL NOT BE LIABLE FOR ANY DIRECT DAMAGES SUFFERED BY LICENSEE, SUBLICENSEES, JOINT VENTURES, OR AFFILIATES ARISING OUT OF OR RELATED TO PATENT RIGHTS TO THE EXTENT ASSIGNED OR LICENSED BY THE REGENTS' INVENTORS TO THIRD PARTIES.

11. PATENT FILING, PROSECUTION AND MAINTENANCE

11.1 Ownership and Prosecution. The Patent Rights will be held in the name of The Regents and obtained with counsel of The Regents' choice. The Regents will use good faith efforts to ensure Licensee receives copies of all correspondence filed with and received from the applicable patent office (e.g., patent applications, office actions, office action responses, etc.) during the term of the Agreement. While The Regents will control all Patent Actions and all decisions with respect to Patent Actions, it will consider any comments or suggestions by Licensee with respect thereto. Licensee has the right to request Patent Actions via a written request to The Regents ninety (90) days prior to the deadline set by the patent office in the territory such Patent Action is to take place (a "**Patent Prosecution Request**"). The Regents shall use all reasonable efforts to amend any patent application to include claims reasonably requested by the Licensee to protect the products contemplated to be sold under this Agreement and to file and prosecute patents in foreign countries indicated by and paid for by Licensee. In addition, provided that Licensee is in compliance with its obligations in Section 11.2, The Regents will undertake all patent actions requested pursuant to a valid Patent Prosecution Request (excluding any request to undertake any action that The Regents or its counsel determines would be adverse to The Regents such as, for example, a request to narrow any claim of any patents licensed hereunder).

11.2 Past & Ongoing Patent Costs. Licensee will bear all out-of-pocket costs incurred by The Regents for Patent Actions ("**Patent Costs**"). Licensee must reimburse to The Regents Patent Costs incurred prior to the term of this Agreement ("**Past Patent Costs**") within thirty (30) days of Licensee's receipt of an invoice from The Regents. As of the Effective Date, Past Patent Costs total approximately[***]. With respect to Patent Costs incurred during the term of this Agreement ("**Ongoing Patent Costs**"), Licensee is required to pay in advance The Regents patent counsel's estimated costs for undertaking Patent Actions that occur during the term of this Agreement before The Regents authorizes its patent counsel to proceed ("**Advanced Payment**"). The absence of this Advanced Payment will be deemed to be an election by Licensee not to secure the patent rights associated with the specific phase of patent prosecution in such territory, and such patent application(s) and patent(s) will not be part of the Patent Rights and therefore not be subject to this Agreement, and Licensee will have no further rights or license to them. At The Regents' sole discretion, rather than requiring an Advanced Payment, The Regents may (1) bill Licensee for Ongoing Patent Costs after such amounts are incurred, in which case payment will be due to The Regents within thirty (30) days of Licensee's receipt of an invoice from The Regents, or (2) have Ongoing Patent Costs directly billed to Licensee by The Regents' patent counsel.

11.3 Termination of Obligations & Rights. Licensee may terminate its license with respect to any or all of Patent Rights by providing written notice to The Regents ("**Patent Termination Notice**"). Termination of Licensee's obligations with respect to such patent application or patent will be effective sixty (60) days after receipt of such Patent Termination Notice by The Regents. In addition, if Licensee fails to timely (i) provide a Patent Prosecution Request pursuant to Section 11.1, or (ii) pay for any Patent Costs as required by Section 11.2, then The Regents shall have the right to terminate this Agreement with respect to the applicable patent application(s) and patent(s) (subject to Licensee's option to cure such breach pursuant to Section 8.4). For the avoidance of doubt immediately effective upon such termination, Licensee will have no further right or license to such patent applications and patents and Licensee will remain liable for any Patent Costs incurred prior to such termination with respect to such patent applications and patents.

11.4 Patent Extensions: Licensee will apply for an extension of the term of any patent included within the Patent Rights, if appropriate, under the Drug Price Competition and Patent Term Restoration Act of 1984 and/or similar regulations or laws in Europe, Japan or other foreign countries; provided, however, that such requirement shall not apply if Licensee, acting reasonably and in good faith, determines that seeking an extension of the term for another patent owned or licensed by Licensee would provide a materially longer patent protection coverage for the applicable Licensed Product. Licensee will prepare all documents and The Regents agrees to execute the documents and to take additional action as Licensee reasonably requests in connection therewith. Licensee will be liable for all costs relating to such application. If either party (in the case of The Regents, the licensing officer responsible for administration of this Agreement) receives notice pertaining to the infringement or potential infringement of any issued patent included with Patent Rights under the Drug Price Competition and Patent Term Restoration Act of 1984 (and/or similar foreign regulations or laws) then that party will within ten (10) days notify the other party after receipt of such notice of infringement.

12. PATENT MARKING

12.1 Licensee will mark all Licensed Products or their containers (or packaging or a product website) in accordance with the appropriate patent number reference(s) in compliance with the requirements of 35 U.S.C. § 287.

13. PATENT INFRINGEMENT

13.1 Infringement Notice. In the event either party learns of infringement of potential commercial significance of any Patent Right, such party will provide the other party with written notice, including evidence of such infringement, if available ("**Infringement Notice**"). Licensee will not notify such infringer regarding such potential infringement until receiving The Regents' written permission, which permission will not be unreasonably withheld. For the avoidance of doubt, if Licensee breaches the foregoing restriction and a declaratory judgment action is filed by such infringer against The Regents, then as The Regents' sole and exclusive remedy for such breach Licensee will reimburse The Regents for The Regents' out of pocket costs in defending the Patent Rights as a result of such declaratory judgment. Both The Regents and Licensee will use their diligent efforts to cooperate with each other to terminate such infringement without litigation.

13.2 Licensee-Initiated Suit and The Regents' Joinder. If infringing activity of potential commercial significance by the infringer has not been abated within thirty (30) days following the date the Infringement Notice takes effect, then Licensee shall have the first right to institute suit for patent infringement against the infringer. The Regents may voluntarilyjoin such suit but may not otherwise commence suit against the infringer for the acts of infringement that are the subject of Licensee's suit or any judgment rendered in that suit. Licensee may not join The Regents as a party in suit initiated by Licensee without The Regents' prior written consent. If The Regents joins a suit initiated by Licensee, then Licensee will pay any costs incurred by The Regents arising out of such suit, including but not limited to, any legal fees of counsel that The Regents selects and retains to represent it in the suit. If The Regents refuses to join a suit initiated by Licensee in a Major Territory despite being deemed a necessary party to such suit by a court of competent jurisdiction in such Major Territory, all payments due The Regents under this Agreement (except those pertaining to patent cost reimbursement), including all royalties, License Maintenance Fees, Minimum Annual Royalties and other payments, shall be reduced by fifty percent (50%) for so long as the infringement by the third party continues unabated in such Major Territory but only to the extent that such infringement in such Major Territory is commercially-significant. For purposes hereof, "**Major Territory**" means any and all of the United States of America, any member state of the European Patent Convention, Canada, Australia, China and Japan.

13.3 The Regents-Initiated Suit. If, within a hundred and twenty (120) days following the date the Infringement Notice takes effect, infringing activity of potential commercial significance by the infringer has not been abated and if Licensee has not brought suit against the infringer, then The Regents may institute suit for patent infringement against the infringer. If Licensee was unable to pursue an alleged infringer as a direct result of The Regents' refusal to join as a party to a suit initiated by Licensee pursuant to Section 13.2, then The Regents acknowledges and agrees it is prohibited from pursuing such alleged infringer pursuant to this Section 13.3. If The Regents institutes such suit, then Licensee may not join such suit without The Regents' consent and may not thereafter commence suit against the infringer for the acts of infringement that are the subject of The Regents' suit or any judgment rendered in that suit.

13.4 Cooperation. Any litigation proceedings will be controlled by the party bringing the suit, except that The Regents may be represented by counsel of its choice in any suit brought by Licensee. The Regents and Licensee agree to be bound by all final and non-appealable determinations of patent infringement, validity and enforceability (but no other issue) resolved by any adjudicated judgment in a suit brought in compliance with this Section 13 (Patent Infringement). Any agreement made by Licensee for purposes of settling litigation or other dispute shall comply with the requirements of Section 3 (Sublicenses) of this Agreement.

13.5 Costs & Recovery. Each party will cooperate with the other in litigation proceedings instituted hereunder but at the expense of the party who initiated the suit (unless such suit is being jointly prosecuted by the parties). Any recovery or settlement received in connection with any suit will first be shared by The Regents and Licensee equally to cover any litigation costs each incurred and next will be paid to The Regents or Licensee to cover any litigation costs it incurred in excess of the litigation costs of the other. In any suit initiated by Licensee, The Regents will receive fifteen percent (15%) of any recovery in excess of litigation costs and Licensee will receive the remaining eighty-five percent (85%). In any suit initiated by The Regents, one hundred percent (100%) of any recovery in excess of litigation costs will belong to The Regents. Notwithstanding the foregoing, if Licensee joins such suit at The Regents request or is involuntarily joined, The Regents will receive seventy-five percent (75%) of any recovery and Licensee will receive the remaining twenty-five percent (25%).

14. INDEMNIFICATION

14.1 Indemnification. Licensee will, and will require its Sublicensees to, indemnify, hold harmless and defend The Regents, the inventors of the Patent Rights, and the sponsors of the research that led to the invention claimed by the Patent Rights, and their respective employers, and the officers, employees and agents of any of the foregoing, against any and all claims, suits, losses, damage, costs, fees and expenses resulting from, or arising out of, the exercise of this license or any Sublicense. This indemnification will include, but not be limited to, any product liability. If The Regents believes that there will be a conflict of interest or it will not otherwise be adequately represented by counsel chosen by Licensee to defend The Regents in accordance with this Section 14.1 (Indemnification), then The Regents may retain counsel of its choice to represent it and Licensee will pay all expenses for such representation.

14.2 Insurance. Licensee, at its sole cost and expense, will insure its activities in connection with any work performed hereunder and will obtain, keep in force, and maintain the following insurance (or will ensure that a Sublicensee obtains, keeps in force and maintains): Commercial Form General Liability Insurance (contractual liability included) with minimum limits as follows:

Each Occurrence: $500,000;
Personal and Advertising Injury: $500,000;
General Aggregate (commercial form only): $1,000,000; and
Worker's Compensation (as legally required in the jurisdiction in which Licensee is doing business).

Notwithstanding the foregoing, no later than sixty (60) days before the first use of any Licensed Product in or on a human, Licensee, at its sole cost and expense, will insure its activities in connection with any work performed hereunder and will obtain, keep in force, and maintain the following insurance: Commercial Form General Liability Insurance (contractual liability included) with minimum limits as follows:

Each Occurrence: $1,000,000;
Products/Completed Operations Aggregate: $5,000,000;
Personal and Advertising Injury: $1,000,000;
General Aggregate (commercial form only): $5,000,000; and
Worker's Compensation (as legally required in the jurisdiction in which Licensee is doing business).

Notwithstanding the foregoing, no later than sixty (60) days before the anticipated date of market introduction of any Licensed Product, Licensee, at its sole cost and expense, will insure its activities in connection with any work performed hereunder and will obtain, keep in force, and maintain the following insurance: Commercial Form General Liability Insurance (contractual liability included) with minimum limits as follows:

Each Occurrence: $5,000,000;
Products/Completed Operations Aggregate: $10,000,000;
Personal and Advertising Injury: $5,000,000;
General Aggregate (commercial form only): $10,000,000; and
Worker's Compensation (as legally required in the jurisdiction in which Licensee is doing business).

If the above insurance is written on a claims-made form, it must continue for three (3) years following termination or expiration of this Agreement. The insurance must have a retroactive date of placement prior to or coinciding with the Effective Date of this Agreement. The coverage and limits above will not in any way limit Licensee's liability under Section 14.1 (Indemnification).

14.3 Certificates; Notification. Upon the execution of this Agreement, Licensee will furnish The Regents with certificates of insurance evidencing compliance with all requirements. Such certificates will indicate The Regents as an additional insured(s) under the coverage described above in Section 14.2 (Insurance) and include a provision that the coverage will be primary and will not participate with, nor will be excess over, any valid and collectable insurance or program of self-insurance maintained by The Regents. The Regents will promptly notify Licensee in writing of any claim or suit brought against The Regents for which The Regents intends to invoke the provisions of this Section 14 (Indemnification). Licensee will keep The Regents informed of its defense of any claims pursuant to this Section 14 (Indemnification). Licensee will provide The Regents written notice if such insurance levels are reduced or cancelled.

15. NOTICES

15.1 Any notice or payment hereunder will be deemed to have been properly given when sent in writing in English to the respective address below and will be deemed effective on the date of delivery if delivered in person; the date of mailing if mailed by first-class certified mail, postage paid; or if sent via email, when the recipient acknowledges having received that email, provided that automated replies and "read receipts" will not be considered acknowledgement of receipt.

In the case of Licensee: **Katmai Pharmaceuticals, Inc.**

[***]

Attention: Bradley Gordon
Pres. and CEO

For The Regents: **The Regents of the University of California**
University of California, Los Angeles
Technology Development Group
10889 Wilshire Boulevard, Suite 920
Los Angeles, CA 90095-7191

Attention: Contracts Management Team
Ref: [***]

All Advanced Payments due under this Agreement must be sent via wire transfer as follows. In order to ensure that funds are properly credited to your account, please reference invoice number or UC Control Number on all wire transfers.

[***]

15.2 Licensee Contact Information: Licensee must furnish to The Regents the completed licensee contact information form attached hereto as **Appendix C** concurrent to execution of this Agreement and incorporated herein by this reference, showing the contacts responsible for (i) Progress Reports, (ii) Patent Prosecution, and (iii) Financial Obligations.

16. ASSIGNABILITY

16.1 This Agreement is binding upon, and will inure to the benefit of, The Regents, its successors and assigns. Licensee may assign or transfer this Agreement only with the prior written consent of The Regents. The prior written consent of The Regents will not be required if the assignment or transfer of this Agreement is in conjunction with a bona fide arms' length transaction involving a merger or the transfer of all or substantially all of the capital stock or business of Licensee to which this license relates, so long as Licensee is in good standing with its obligations under this Agreement and The Regents is legally, contractually, and, per its policies, able to enter into an agreement with such assignee or transferee (the phrase "policies" understood as broad, Regents-wide restrictions on assignments to certain classes of companies) and provided that such assignment shall not place the Regents in a conflict of commitment.

16.2 In any assignment or transfer of this Agreement, the conditions (i)-(iii) below shall be timely met. Any attempted assignment by Licensee other than in accordance with this Section will be null and void.

(i) Licensee is then in good standing with its obligations under this Agreement;

(ii) Licensee provides The Regents with written notice of such assignment, identifying the assignee or transferee entity's name and contact information, no later than the earlier of (x) the date such transaction is first publicly announced and (y) the date of consummation of such transaction (it being understood, however, that Licensee will endeavor to provide The Regents with prior written notice of the proposed assignment to the extent practicable under the circumstances and not prohibited by applicable law or regulation or Licensee's contractual obligations to the applicable third party);

(iii) provide The Regents with a written agreement signed by the proposed acquirer or successor entity agreeing to be bound by all of the provisions of this Agreement, as well as assume all responsibilities and liabilities that arose under this Agreement prior to the effective date of the proposed assignment, as if such acquirer or successor entity were the original Licensee within thirty (30) days after any such assignment; and

(iv) pay to The Regents an assignment fee of **[***]** within thirty (30) days after any such assignment. This assignment fee will not be required if the Licensee can establish by documented evidence that it (or together with its Sublicensee) has expended more than **[***]** in the development of Licensed Products prior to the date of such anticipated assignment or transfer.

17. GOVERNING LAWS AND VENUE

Choice of Law & Venue: THIS AGREEMENT WILL BE INTERPRETED AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF CALIFORNIA, excluding any choice of law rules that would direct the application of the laws of another jurisdiction and without regard to which party drafted particular provisions of this Agreement, but the scope and validity of any patent or patent application will be governed by the applicable laws of the country of such patent or patent application. Any legal action brought by the parties hereto relating to this Agreement will be conducted in Los Angeles, California.

18. COMPLIANCE WITH LAWS

18.1 If this Agreement or any associated transaction is required by the law of any nation to be either approved or registered with any governmental agency, Licensee will assume all legal obligations to do so. Licensee will notify The Regents if it becomes aware that this Agreement is subject to a United States or foreign government reporting or approval requirement. Licensee will make all necessary filings and pay all costs including fees, penalties and all other out-of-pocket costs associated with such reporting or approval process.

18.2 Licensee agrees to comply with all applicable international, national, state, regional and local laws and regulations in performing its obligations hereunder and in its use, manufacture, sale or import of the Licensed Products. Licensee will observe all applicable United States and foreign laws with respect to the transfer or provision of Licensed Products and related technical data to foreign countries, including, without limitation, the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations. Licensee agrees to manufacture and use Licensed Products in compliance with applicable government importation laws and regulations of a particular country for Licensed Products made outside the particular country in which such Licensed Products are used, sold or otherwise exploited.

19. CONFIDENTIALITY

19.1 Licensee and The Regents will treat and maintain the other party's confidential information, including the negotiated terms of this Agreement, patent prosecution related information, Associated Technology, any progress reports and royalty reports and any Sublicense issued pursuant to this Agreement ("**Confidential Information**") in confidence using at least the same degree of care as the receiving party uses to protect its own confidential information of a like nature from the date of disclosure until five (5) years after the termination or expiration of this Agreement. Confidential Information can be written, oral, or both.

19.2 Licensee and The Regents may disclose Confidential Information to their employees, agents, consultants, contractors, and co-owners (as applicable) and, in the case of Licensee, its actual or prospective Sublicensees, provided that such parties are bound by a like duty of confidentiality as that found in this Section 19 (Confidentiality). Notwithstanding anything to the contrary contained in this Agreement, The Regents may release this Agreement, including any terms contained herein and information regarding payments or other income received in connection with this Agreement to the inventors, senior administrative officials employed by The Regents and individual Regents upon their request, provided such individuals are informed of the confidential nature of such information. The Licensee is free to release the terms and conditions of this Agreement to any actual or prospective Sublicensees, development partners, service providers, investors and acquirers so long as they are bound to Licensee by terms of confidentiality no less restrictive than those stated herein. In addition, notwithstanding anything to the contrary in this Agreement, if a third party inquires whether a license to Patent Rights is available, then The Regents may disclose the existence of this Agreement and its scope of the license granted hereunder.

19.3 Nothing contained herein will restrict or impair, in any way, the right of Licensee or The Regents to use or disclose any Confidential Information that: (a) recipient can demonstrate by written records was previously known to it prior to its disclosure by the disclosing party; (b) recipient can demonstrate by written records is now, or becomes in the future, public knowledge other than through acts or omissions of recipient; (c) recipient can demonstrate by written records was obtained lawfully and without restrictions on the recipient from sources independent of the disclosing party; and (d) The Regents is required to disclose pursuant to the California Public Records Act or other applicable law.

19.4 Licensee or The Regents also may disclose Confidential Information that is required to be disclosed (i) to a governmental entity or agency in connection with seeking any governmental or regulatory approval, governmental audit, or other governmental contractual requirement or (ii) by law, e.g., California Public Records Act, provided that the recipient uses reasonable efforts to give the party owning the Confidential Information sufficient notice of such required disclosure to allow the party owning the Confidential Information reasonable opportunity to object to, and to take legal action to prevent, such disclosure. Nothing in this Agreement will be construed to prevent The Regents from reporting de-identified raw terms of this Agreement as part of a larger database.

19.5 Upon termination of this Agreement, Licensee and The Regents will destroy or return any of the disclosing party's Confidential Information, including all Associated Technology, in its possession within fifteen (15) days following the termination of this Agreement and provide each other with prompt written notice that such Confidential Information has been returned or destroyed. Each party may, however, retain one copy of such Confidential Information for archival purposes in non-working files. For clarity, any Developments provided by Licensee pursuant to Section 8.6 will be deemed upon termination of this Agreement to constitute The Regents' Confidential Information.

20. MISCELLANEOUS

20.1 Entire & Binding Agreement. This Agreement, which includes the attached Appendices A (Patent Rights), B (Royalty Statement), C (Licensee Contact Information), and D (Stock Issuance Agreement), and E (Associated Technology) embodies the entire understanding of the parties and supersedes all previous communications, representations or understandings, either oral or written, between the parties relating to the subject matter hereof. This Agreement is not binding on the parties until it has been signed below on behalf of each party and is then effective as of the Effective Date. No amendment or modification of this Agreement is valid or binding on the parties unless made in writing and signed on behalf of each party. In case any of the provisions contained in this Agreement is held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability will not affect any other provisions of this Agreement and such unenforceable provision shall be modified so that it is valid, legal, and enforceable and, to the fullest extent possible, reflects the intention of the parties.

20.2 Headings. The headings of the several sections are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement.

20.3 Waiver. No waiver by either party of any breach or default of any of the agreements contained herein will be deemed a waiver as to any subsequent and/or similar breach or default.

20.4 Independent Contractors. In performing their respective duties under this Agreement, each of the parties will be operating as an independent contractor. Nothing contained herein will in any way constitute any association, partnership, or joint venture between the parties hereto, or be construed to evidence the intention of the parties to establish any such relationship. Neither party will have the power to bind the other party or incur obligations on the other party's behalf without the other party's prior written consent.

20.5 Counterparts. This Agreement may be executed in one or more counterparts, each of which together will constitute one and the same Agreement. For purposes of executing this Agreement, a facsimile (including a PDF image delivered via email) copy of this Agreement, including the signature pages, will be deemed an original. The parties agree that neither party will have any rights to challenge the use or authenticity of a counterpart of this Agreement based solely on that its signature, or the signature of the other party, on such counterpart is not an original signature.

IN WITNESS WHEREOF, both The Regents and Licensee have executed this Agreement by their respective and duly authorized officers on the day and year written.

KATMAI PHARMACEUTICALS, INC.

By: /s/ Bradley B. Gordon
(Signature)

Name: Bradley B. Gordon

Title: President, CEO

Date: 3/9/20

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

By: /s/ Mark Wisniewski
(Signature)

Name: Mark Wisniewski

Title: Sr. Director, Biopharmaceuticals

Date: 3/9/20

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

By: /s/ Amir Naiberg
(Signature)

Name: Amir Naiberg

Title: AVC, Technology Development Group

Date: 3/9/20

APPENDIX A

PATENT RIGHTS

[***]

APPENDIX B

ROYALTY STATEMENT

[***]

APPENDIX C

LICENSEE CONTACT INFORMATION

[***]

APPENDIX E

RESIDUAL INFORMATION

[***]

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

FIRST AMENDMENT TO EXCLUSIVE AGREEMENT

UC Control No. [***]

THIS FIRST AMENDMENT (the "**First Amendment**") is effective this **December 18, 2020,** by and between **The Regents of the University of California** ("**The Regents**"), a California corporation having its statewide administrative offices at 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200, acting through the offices of The University of California, Los Angeles located at 10889 Wilshire Blvd, Suite 920, Los Angeles, CA 90095-7191, and **Katmai Pharmaceuticals, Inc.** ("**Licensee**"), a Delaware corporation having a principal place of business at 1126 Goldenrod Ave., Corona Del Mar, California 92625, amends that certain Exclusive License Agreement, UC Control No. 2020-04-0576, dated March 11, 2020 (the "**Agreement**") in accordance with the terms and conditions of this First Amendment.

WHEREAS, the parties are entering into that certain Sponsored Research Agreement ("**SRA**") concurrently with execution of this First Amendment;

WHEREAS, the parties hereby agree to include under this Agreement all ERAS-801 Inventions and non-patentable Deliverables (such capitalized terms as defined in the SRA) as further detailed below;

WHEREAS, Licensee desires, and The Regents agrees, to include under this Agreement the non-patentable subject matter disclosed to The Regents pursuant to UCLA Case No. [***] as Associated Technology licensed pursuant to the terms of the Agreement;

WHEREAS, the parties are currently in discussions regarding Licensee's desire to include other Potential Patent Rights (defined below) as Patent Rights licensed under this Agreement and, in view of such active discussions, The Regents agrees to refrain from licensing its interest in such Potential Patent Rights for a period of time as defined herein below;

NOW, THEREFORE, the parties agree as follows:

1. **ERAS-801 Inventions.** Pursuant to Section 10.4 of the SRA, the parties have agreed that, to the extent The Regents has the legal right and ability to do so, patents The Regents pursues on ERAS-801 Inventions (as defined in Section 11.5 of the SRA) will be incorporated into this Agreement and will constitute Patent Rights under this Agreement. In such case, the parties further agree that:

(1) the parties will amend Appendix A of this Agreement to incorporate the applicable UCLA Case Number corresponding to each such ERAS-801 Invention, and the template amendment attached to this First Amendment as Exhibit 1 will be used to facilitate such amendment;

(2) while no additional consideration (e.g., a license amendment fee) will be required when executing the amendment referred to in subpart (1) above, such newly incorporated Patent Rights will be subject to all of the provisions of this Agreement, including all obligations (e.g., Earned Royalties, Past and Ongoing Patent Cost reimbursement, progress and royalty reports, etc.) and all rights (e.g., license granted pursuant to Section 2.1, ability to grant Sublicenses under Section 3, etc.) under this Agreement;

(3) if the nature of an ERAS-801 Invention is such that The Regents determines additional Development Milestones need to be included under Section 5.2 of the Agreement (Development Milestones), then the parties will confer and include additional Development Milestones in the applicable amendment to this Agreement;

(4) it is possible that certain ERAS-801 Inventions, while related to ERAS-801, may be capable of being used for purposes independent of ERAS-801 (the Patent Rights pursued thereon constituting "**Patent Rights of General Applicability**"), e.g., a diagnostic invention applicable to a disease that has multiple treatment options in addition to ERAS-801. In such case, the parties agree that the exclusive license granted to Licensee to the Patent Rights pursuant to Section 2.1 will also be subject to Section 2.2.C, which the parties agree is hereby added to this Agreement:

"C. Patent Rights designated by the parties as constituting Patent Rights of General Applicability will be limited to the ERAS-801 Field of Use such that The Regents expressly reserves the right to grant exclusive rights to the Patent Rights of General Applicability outside of the ERAS-801 Field of Use. "**ERAS-801 Field of Use**" means use of the Patent Rights solely for the purposes of developing, manufacturing and commercializing ERAS-801 and specifically excluding the right to use such Patent Rights for purposes independent of the compounds claimed by the Patent Rights.

2. **Non-patentable Deliverables.** Pursuant to Section 9.2 of the SRA, the parties have agreed that, to the extent The Regents has the legal right and ability to do so, non-patentable Deliverables (as defined by Section 9.1 of the SRA to include Periodic Reports, Data and the Final Report) will be incorporated into this Agreement and will constitute Associated Technology under this Agreement. In such case, the parties further agree that:

(1) the parties will amend Appendix A of this Agreement to incorporate the applicable UCLA Case Number corresponding to such Deliverables, and the template amendment attached to this First Amendment as Exhibit 1 will be used to facilitate such amendment;

(2) while no additional consideration (e.g., a license amendment fee) will be required when executing the amendment referred to in subpart (1) above, such newly incorporated Associated Technology will be subject to all of the provisions of this Agreement, including all obligations (e.g., Earned Royalties, etc.) and all rights (e.g., license granted pursuant to Section 2.1, ability to grant Sublicenses under Section 3, etc.) under this Agreement;

(3) such newly added Associated Technology will be subject to the Associated Technology Field of Use. **"Associated Technology Field of Use"** means use of the Associated Technology solely for the purposes of developing, manufacturing and commercializing the compounds claimed by the Patent Rights. If Licensee desires to use or otherwise exploit the Associated Technology for any other purpose, e.g., for the purposes of data mining and/or any other type of analysis to discover, develop, manufacture or commercialize products (e.g., compounds, analogues, etc.) that are not covered by the Patent Rights, then the parties will confer and amend this Agreement to enable such use as mutually agreed to by the parties.

3. **Incorporation of Associated Technology:** The parties have agreed to hereby add the nonpatentable subject matter disclosed and assigned to The Regents pursuant to the following UCLA Case Number as Associated Technology licensed pursuant to the terms, and therefore it is hereby added to Appendix E, of the Agreement:

[***]

4. **Standstill on Other Regents IP:** The parties are also actively discussing Licensee's request to incorporate the UCLA Case Numbers identified in the table below as Patent Rights licensed under the Agreement ("**Potential Patent Rights**"). To enable the parties to have additional time to negotiate the terms related thereto, The Regents agrees to not grant any option or license to its interest in the Potential Patent Rights to another person or entity for the period commencing on the First Amendment's Effective Date and ending six (6) months thereafter. For clarity, no option or license is granted by The Regents to such Potential Patent Rights pursuant to this First Amendment.

[***]

Both The Regents and Licensee have executed this First Amendment by their authorized officers on the dates written below:

KATMAI PHARMACEUTICALS, INC.

By: /s/ Bradley Gordon
(Signature)
Name: Bradley Gordon
Title: President and CEO
Date: 12/18/2020

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

By: /s/ Amir Naiberg
(Signature)
Name: Amir Naiberg
Title: Associate Vice Chancellor, CEO & President
Date: 12/21/2020

EXHIBIT 1

[INSERT NUMBER] AMENDMENT TO EXCLUSIVE AGREEMENT

[***]

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

SECOND AMENDMENT TO EXCLUSIVE AGREEMENT

UC Control No. [***]

THIS SECOND AMENDMENT (the "**Second Amendment**") is effective this **April 1, 2021**, by and between **The Regents of the University of California** ("**The Regents**"), a California corporation having its statewide administrative offices at 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200, acting through the offices of The University of California, Los Angeles located at 10889 Wilshire Blvd, Suite 920, Los Angeles, CA 90095-7191, and **Katmai Pharmaceuticals, Inc.** ("**Licensee**"), a Delaware corporation having a principal place of business at 1126 Goldenrod Ave., Corona Del Mar, California 92625, amends that certain Exclusive License Agreement, UC Control No. 2020-04-0576, dated March 11, 2020, and as subsequently amended in a First Amendment effective December 21, 2020 ("**First Amendment**") in accordance with the terms and conditions of this Second Amendment (collectively, the "**Agreement**").

WHEREAS, Licensee and The Regents are parties to two Sponsored Research Agreements each made effective July 28, 2020, i.e., UCLA Ref. Nos.[***] ("**SRA**");

WHEREAS, pursuant to the First Amendment to the Agreement the parties agreed to incorporate under the Agreement all ERAS-801 Inventions and non-patentable Deliverables (such capitalized terms as defined in the SRA) as further detailed in such First Amendment;

WHEREAS, the invention disclosed to UCLA pursuant to UCLA Case No. [***]constitutes an ERAS-801 Invention resulting from the SRA and the parties are executing this Second Amendment to acknowledge the patents pursued by The Regents on such ERAS-801 Invention constitute Patent Rights under this Agreement;

WHEREAS, the non-patentable subject matter disclosed to UCLA pursuant to UCLA Case No. [***] constitutes non-patentable Deliverables resulting from the SRA and the parties are executing this Second Amendment to acknowledge such non-patentable Deliverables constitute Associated Technology under this Agreement;

NOW, THEREFORE, the parties agree as follows:

1. The parties hereby agree to amend Appendix A of the Agreement to incorporate the patents The Regents pursues on UCLA Case No. [***] as Patent Rights under this Agreement. The parties further agree that these Patent Rights constitute Patent Rights of General Applicability and therefore are subject to Section 2.2.C of this Agreement (see First Amendment).

2. The parties hereby agree to amend Appendix E of the Agreement to incorporate the following nonpatentable subject matter disclosed and assigned to The Regents pursuant to the following UCLA Case Number as Associated Technology licensed pursuant to the terms of the Agreement, provided that this newly incorporated Associated Technology will be subject to the Associated Technology Field of Use, as defined by the First Amendment to the Agreement.

3. Attached to this Second Amendment as Attachments 1 and 2 are the updated Appendices A and E from the Agreement which serve to incorporate the Patent Rights and Associated Technology as described above. For the avoidance of doubt, no Associated Technology and no Patent Rights are being removed from these Appendices as a result of this Second Amendment – the sole update is the addition of the Patent Rights and Associated Technology as described in paragraphs 1 and 2 above.

All other terms and conditions of the Agreement remain the same. This Second Amendment may be executed in two or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same instrument. Electronic, facsimile, Portable Document Format (PDF) or photocopied signatures of the parties will have the same legal validity as original signatures.

Both The Regents and Licensee have executed this Second Amendment by their authorized officers on the dates written below:

KATMAI PHARMACEUTICALS, INC.

By: /s/ Bradley Gordon
(Signature)
Name: Bradley Gordon
Title: President and CEO

Date: 5/24/2021

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

By: /s/ Mark Wisniewski
(Signature)
Name: Mark Wisniewski
Title: Sr. Director of Business Development, Biopharmaceuticals

Date: 5/25/2021

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

By: /s/ Amir Naiberg
(*Signature)*
Name: Amir Naiberg
Title: AVC, Technology Development Group

Date: 5/26/2021

ATTACHMENT 1 TO SECOND AMENDMENT

APPENDIX A

REGENTS' PATENT RIGHTS

[***]

ATTACHMENT 2 TO SECOND AMENDMENT

APPENDIX E

ASSOCIATED TECHNOLOGY

[***]

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

THIRD AMENDMENT TO EXCLUSIVE AGREEMENT

UC Control No. 2020-04-0576D

THIS THIRD AMENDMENT (the "**Third Amendment**") is effective this **February 1, 2022**, by and between **The Regents of the University of California** ("**The Regents**"), a California corporation having its statewide administrative offices at 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200, acting through the offices of The University of California, Los Angeles located at **10889 Wilshire Blvd, Suite 920, Los Angeles, CA 90095-7191**, and **Katmai Pharmaceuticals, Inc.** ("**Licensee**"), a Delaware corporation having a principal place of business at **1126 Goldenrod Ave., Corona Del Mar, California 92625**, amends that certain Exclusive License Agreement, UC Control No. 2020-04-0576, dated March 11, 2020, and as subsequently amended in a First Amendment effective December 21, 2020, and in a Second Amendment effective April 1, 2021, in accordance with the terms and conditions of this Third Amendment (collectively, the "**Agreement**").

WHEREAS, Licensee and The Regents desire to add the patents pursued by The Regents on the invention disclosed pursuant to UCLA Case No. [***] to the scope of the Patent Rights licensed pursuant to the Agreement;

NOW, THEREFORE, the parties agree as follows:

1. The parties hereby agree to amend Appendix A of the Agreement to incorporate the patents The Regents pursues on the invention disclosed pursuant to UCLA Case No. [***], e.g., U.S. Provisional Application No. [***] and PCT Application No. [***].

2. Attached to this Third Amendment as Attachment 1 is an updated Appendix A from the Agreement which serves to incorporate the Patent Rights as described above. For the avoidance of doubt, no Patent Rights are being removed from Appendix A a result of this Third Amendment – the sole update is the addition of the Patent Rights as described in paragraph 1 above.

All other terms and conditions of the Agreement remain the same. This Third Amendment may be executed in two or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same instrument. Electronic, facsimile, Portable Document Format (PDF) or photocopied signatures of the parties will have the same legal validity as original signatures.

[Signatures on next page.]

Both The Regents and Licensee have executed this Third Amendment by their authorized officers on the dates written below:

KATMAI PHARMACEUTICALS, INC.

By: /s/ Bradley Gordon
(Signature)
Name: Bradley Gordon
Title: President and CEO

Date: 2/8/22

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

By: /s/ Mark Wisniewski
(Signature)
Name: Mark Wisniewski
Title: Sr. Director of Business Development, Biopharmaceuticals

Date: 2/8/22

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

By: /s/ Amir Naiberg
(*Signature)*
Name: Amir Naiberg
Title: AVC, Technology Development Group

Date: 2/9/22

ATTACHMENT 1 TO THIRD AMENDMENT

APPENDIX A

REGENTS' PATENT RIGHTS

[***]

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the registration statement (No. 333-257988) on Form S-8 of our report dated March 24, 2022, with respect to the consolidated financial statements of Erasca, Inc.

/s/ KPMG LLP

San Diego, California
March 24, 2022

Exhibit 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Jonathan E. Lim, M.D., certify that:

1. I have reviewed this Annual Report on Form 10-K of Erasca, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) [omitted];

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 24, 2022

By: /s/ Jonathan E. Lim, M.D.

Jonathan E. Lim, M.D.
Chairman and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, David M. Chacko, M.D., certify that:

1. I have reviewed this Annual Report on Form 10-K of Erasca, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) [omitted];

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 24, 2022

By: /s/ David M. Chacko, M.D.

David M. Chacko, M.D.

Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of Erasca, Inc. (the "Company") for the year ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 24, 2022

By: /s/ Jonathan E. Lim, M.D.
Jonathan E. Lim, M.D.
Chairman and Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of Erasca, Inc. (the "Company") for the year ended December 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 24, 2022

By: /s/ David M. Chacko, M.D.
David M. Chacko, M.D.
Chief Financial Officer
(Principal Financial and Accounting Officer)