Filed Pursuant to Rule 424(b)(4)
Registration Nos. 333-227333 and 333-227774

PROSPECTUS

18,000,000 Shares

Common Stock

This is an initial public offering of shares of common stock of Allogene Therapeutics, Inc. We are offering 18,000,000 shares of our common stock. The initial public offering price is $18.00 per share of common stock.

Prior to this offering, there has been no public market for our common stock. Our common stock has been approved for listing on the Nasdaq Global Select Market under the symbol "ALLO."

We are an "emerging growth company" as that term is used in the Jumpstart Our Business Startups Act of 2012 and, as such, have elected to comply with certain reduced public company reporting requirements.

	Per Share	Total
Initial public offering price	$ 18.00	$324,000,000
Underwriting discounts and commissions(1)	$ 1.26	$ 22,680,000
Proceeds to Allogene, before expenses	$ 16.74	$301,320,000

(1) See the section entitled "Underwriting" for a description of the compensation payable to the underwriters.

Investing in our common stock involves risks. See "Risk Factors" beginning on page 12 to read about factors you should consider before buying shares of our common stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities nor passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

We have granted the underwriters the option for a period of 30 days to purchase up to an additional 2,700,000 shares from us at the initial price to the public less the underwriting discounts and commissions.

The underwriters expect to deliver the shares against payment in New York, New York on October 15, 2018.

Goldman Sachs & Co. LLC **J.P. Morgan** **Cowen** **Jefferies**

Prospectus dated October 10, 2018.

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We have not, and the underwriters have not, authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the shares offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus or in any applicable free writing prospectus is current only as of its date, regardless of its time of delivery or any sale of shares of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

This prospectus includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information.

For investors outside the United States: We have not, and the underwriters have not, done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of common stock and the distribution of this prospectus outside the United States.

PROSPECTUS SUMMARY

This summary highlights information contained in other parts of this prospectus. Because it is only a summary, it does not contain all of the information that you should consider before investing in shares of our common stock and it is qualified in its entirety by, and should be read in conjunction with, the more detailed information appearing elsewhere in this prospectus. You should read the entire prospectus carefully, especially "Risk Factors" and our financial statements and the related notes, before deciding to buy shares of our common stock. The discussion of existing autologous therapies in the summary below and elsewhere in this prospectus, including the section entitled "Business," is not intended to imply that our product candidates are more likely than others to receive regulatory approval from any regulatory authority. Unless the context requires otherwise, references in this prospectus to "Allogene," "we," "us" and "our" refer to Allogene Therapeutics, Inc., and references in this prospectus to "Servier" collectively refer to Les Laboratoires Servier SAS and Institut de Recherches Internationales Servier SAS.

Allogene Therapeutics

Overview

We are a clinical stage immuno-oncology company pioneering the development and commercialization of genetically engineered allogeneic T cell therapies for the treatment of cancer. We are developing a pipeline of off-the-shelf T cell product candidates that are designed to target and kill cancer cells. Our engineered T cells are allogeneic, meaning they are derived from healthy donors for intended use in any patient, rather than from an individual patient for that patient's use, as in the case of autologous T cells. We believe this key difference will enable us to deliver readily available treatments faster, more reliably, at greater scale, and to more patients. In addition, we believe our management team's experience in immuno-oncology and specifically in chimeric antigen receptor (CAR) T cell therapy will help drive the rapid development and, if approved, the commercialization of these potentially curative therapies for patients with aggressive cancer.

In collaboration with Servier, we are developing UCART19, a CAR T cell product candidate targeting CD19. UCART19 is being studied in clinical trials in patients with relapsed or refractory (R/R) B-cell precursor acute lymphoblastic leukemia (ALL), and we expect UCART19 to be advanced to potential registrational trials in the second half of 2019. We also plan to submit an investigational new drug application (IND) in the first half of 2019 for our second allogeneic anti-CD19 CAR T cell product candidate, ALLO-501, for the treatment of R/R non-Hodgkin lymphoma (NHL). In addition, we have a deep pipeline of allogeneic CAR T cell product candidates targeting multiple promising antigens in a host of hematological malignancies and solid tumors.

CAR T cell therapy, a form of cancer immunotherapy, has recently emerged as a revolutionary and potentially curative therapy for patients with hematologic cancers, including refractory cancers. In 2017, two autologous anti-CD19 CAR T cell therapies, Kymriah, developed by Novartis International AG (Novartis), and Yescarta, developed by Kite Pharma, Inc. (Kite), were approved by the FDA for the treatment of R/R B-cell precursor ALL (Kymriah) and R/R large B-cell lymphoma (Yescarta). Autologous CAR T cell therapies are manufactured individually for the patient's use by modifying the patient's own T cells to express CARs. The entire manufacturing process is dependent on the viability of each patient's T cells and takes approximately two to four weeks. As seen in the registrational trials for Kymriah and Yescarta, up to 31% of intended patients ultimately did not receive treatment primarily due to interval complications from the underlying disease during manufacturing or manufacturing failures.

The below chart highlights some of the potential key benefits of allogeneic CAR T cell therapy.

Supply	• Off-the-shelf product enables creation of inventory • Potential to treat more patients than autologous cell therapies • Readily available supply for retreatment
Delivery Time	• On demand product delivery from inventory • Faster time to treatment may improve patient outcomes
Potency	• More uniform starting materials sourced from healthy donors
Cost	• Potential for ~100 doses from a single manufacturing run • Ability to scale production to further reduce cost

Our Pipeline

We are currently developing a pipeline of multiple allogeneic CAR T cell product candidates utilizing protein engineering, gene editing, gene insertion and advanced proprietary T cell manufacturing technologies. Our most advanced product candidate, UCART19, is an engineered allogeneic CAR T cell therapy that targets CD19, a protein expressed on the cell surface of B cells and a validated target for B cell driven hematological malignancies. We are also developing engineered allogeneic CAR T cell product candidates for multiple myeloma, other blood cancers and solid tumors. Our pipeline is represented in the diagram below.

1 *May not be required if Phase 2 is a registrational clinical trial.*
2 *Servier holds ex-US commercial rights.*
3 *To enable expansion and persistence of allogeneic CAR T product candidates.*

Our lead product candidates include:

- *UCART19.* In 2016, our collaboration partner, Servier, initiated two clinical trials of UCART19: the CALM trial and the PALL trial. The CALM trial is a Phase 1, open-label, dose-escalation clinical trial in adult patients with R/R ALL. The PALL trial is a Phase 1, open-label, clinical trial in pediatric patients with R/R ALL. In June 2018, interim results from 18 patients in the CALM and PALL clinical trials were presented at the 23rd European Hematology Association Annual Congress. As of April 2018, 13 out of 16 evaluable patients, or 81%, achieved a complete response (CR), defined as the absence of any evidence of cancer, and 12 of those patients, or 92%, achieved a minimum residual disease negative CR (MRD- CR), which occurs when a patient achieves a CR and there is no evidence of ALL cells in the marrow when using sensitive tests such as polymerase chain reaction or flow cytometry. The most common adverse events were related to cytokine release syndrome (CRS) and

were generally manageable. Two mild graft-versus-host disease (GvHD) cases in the skin were observed and resolved. See the discussion under the heading "—Business—Product Pipeline and Development Strategy—UCART19—Clinical Data—Interim Safety" on page 98 of this prospectus for more information regarding adverse events. We expect UCART19 to be advanced to potential registrational trials in the second half of 2019.

- *ALLO-501*. We plan to submit an IND in the first half of 2019 for our second allogeneic anti-CD19 CAR T cell product candidate, ALLO-501, for the treatment of patients with R/R NHL. The manufacturing process for ALLO-501 is different than the one employed for UCART19, but the two product candidates are identical in molecular design.
- *ALLO-715*. We plan to submit an IND in 2019 for an allogeneic CAR T cell product candidate, ALLO-715, targeting BCMA for the treatment of patients with R/R multiple myeloma. Several clinical studies of third-party autologous CAR T cell therapies targeting BCMA have produced promising results in this indication.
- *ALLO-647*. We are developing an anti-CD52 monoclonal antibody, ALLO-647, which is designed to be used prior to infusing our other product candidates as part of the lymphodepletion regimen. We believe ALLO-647 can reduce the likelihood of a patient's immune system rejecting the engineered allogeneic T cells, and may create a window of persistence during which the engineered allogeneic T cells can actively target and destroy cancer cells.

Our Approach

Our allogeneic T cell development strategy has four key pillars:

- ***Limit risk of GvHD.*** GvHD is a condition where allogeneic T cells can recognize the patient's normal tissue as foreign and cause damage. We use a gene editing technology, TALEN, which we license from Cellectis, S.A. (Cellectis), to limit the risk of GvHD by engineering T cells to lack functional T cell receptors (TCRs) so the engineered T cells are no longer capable of recognizing a patient's normal tissue as foreign.
- ***Create a window of persistence by allowing allogeneic T cells to expand in patients.*** To enhance the expansion and persistence of our engineered allogeneic T cells, we use TALEN to inactivate the CD52 gene in donor T cells and an anti-CD52 monoclonal antibody to deplete CD52 expressing T cells in patients while sparing the therapeutic allogeneic T cells. We believe this enables a window of persistence for the infused allogeneic T cells to expand and actively target and destroy cancer cells. We are also developing ALLO-647, our own anti-CD52 monoclonal antibody.
- ***Build a leading manufacturing platform.*** Our off-the-shelf approach is dependent on state-of-the-art manufacturing processes, and we are building a technical operations organization with fully integrated in-house expertise in clinical and commercial engineered T cell manufacturing.
- ***Leverage next generation technologies to improve the functionality of allogeneic CAR T cells.*** We plan to leverage next generation technologies to develop more potent allogeneic CAR T cells and to improve the characteristics of our product candidates. We believe next generation technologies will also allow us to develop allogeneic T cell therapies for the treatment of solid tumors, which to date have been difficult to treat in part due to tumor microenvironments that can impair the activity of T cells.

Our History and Team

We believe we have established a leadership position in allogeneic T cell therapy. In April 2018, we acquired certain assets from Pfizer Inc. (Pfizer), including strategic license and collaboration agreements and

other intellectual property related to the development and administration of allogeneic CAR T cells for the treatment of cancer. We have an exclusive collaboration with Servier to develop and commercialize UCART19 and ALLO-501, and we hold the commercial rights to these product candidates in the United States. We also have an exclusive worldwide license from Cellectis to use its TALEN gene-editing technology for the development of allogeneic T cell product candidates directed against 15 different cancer antigens.

Our world-class management team has significant experience in immuno-oncology and in progressing products from early stage research to clinical trials, and ultimately to regulatory approval and commercialization. In particular, our Executive Chairman, Arie Belldegrun, M.D., FACS, has experience in T cell therapy that dates back to his time at the National Cancer Institute as a research fellow in surgical oncology and immunotherapy with Steven Rosenberg, M.D., Ph.D, a recognized pioneer in immuno-oncology. Our President and Chief Executive Officer, David Chang, M.D., Ph.D., served as Executive Vice President of Kite and held senior leadership roles at Amgen, Inc. (Amgen). Moreover, both Dr. Belldegrun and Dr. Chang led the development and approval of Yescarta at Kite. Additionally, our Chief Technical Officer, Alison Moore, Ph.D., was previously Senior Vice President, Process Development at Amgen, where she led the development, deployment and oversight of manufacturing for approximately 80 multi-modality assets.

Our Strategy

Our goal is to maintain and build upon our leadership position in allogeneic T cell therapy. We plan to rapidly develop and, if approved, commercialize allogeneic T cell products for the treatment of cancer that can be delivered faster, more reliably and at greater scale than autologous T cell therapies. We believe achieving this goal could result in allogeneic T cell therapy becoming a standard of care in cancer treatment and enable us to make potentially lifesaving therapies more readily accessible to more patients throughout the world. Key elements of our strategy include:

- ***Capitalize on a validated target and our first mover advantage in engineered allogeneic anti-CD19 CAR T cell product candidates.*** Autologous anti-CD19 CAR T cell therapies, such as Kymriah and Yescarta, have emerged as potentially curative therapies for B-cell lymphomas and leukemias. We believe developing allogeneic CAR T cell product candidates targeting CD19, such as UCART19 and ALLO-501, is the next frontier in delivering potentially curative therapies against B-cell lymphomas and leukemias, including NHL and ALL.
- ***Expand our leadership position within hematologic indications.*** In addition to UCART19, we plan to advance our near-term pipeline against additional hematological targets where there remains a high unmet need, including ALLO-715, an allogeneic CAR T cell product candidate targeting BCMA for the treatment of R/R multiple myeloma.
- ***Build state-of-the-art gene engineering and cell manufacturing capabilities.*** Manufacturing allogeneic T cell product candidates involves a series of complex and precise steps. We believe a critical component to our success will be to leverage and expand our proprietary manufacturing know-how, expertise and capacity. Accordingly, we plan to invest in cutting edge manufacturing systems and facilities.
- ***Leverage next generation technologies to advance our platform and expand into solid tumor indications with high unmet need.*** We have a broad portfolio of solid tumor targets, including CD70 for the treatment of renal cell cancer and DLL3 for the treatment of small cell lung cancer and other aggressive neuroendocrine tumors. We plan to leverage next generation technologies to make more potent allogeneic CAR T cells and improve the characteristics of our product candidates.

Recent Private Financings

In April 2018, we initiated a $300.0 million Series A and A-1 preferred stock financing, with the first $150.0 million received in April and the second $150.0 million received in July and August, with investments from BellCo Capital, Gilead, Pfizer, Regents of the University of California, funds affiliated with TPG Global, LLC, partners of Two River, and Vida Ventures, LLC.

In September 2018, we sold and issued $120.2 million aggregate principal amount of convertible promissory notes (2018 Notes) in a private placement transaction. The 2018 Notes do not accrue interest and will automatically settle into shares of our common stock in connection with the closing of this offering at a settlement price equal to 85% of the initial public offering price per share set forth on the cover page of this prospectus.

Risks Associated with Our Business

Our ability to implement our business strategy is subject to numerous risks that you should be aware of before making an investment decision. These risks are described more fully in the section entitled ‘‘Risk Factors,’’ immediately following this prospectus summary. These risks include the following, among others:

- We have a limited operating history and face significant challenges and expense as we build our capabilities.
- We have incurred net losses in every period since our inception and anticipate that we will incur substantial net losses in the future.
- Our engineered allogeneic T cell product candidates represent a novel approach to cancer treatment that creates significant challenges for us.
- We are heavily reliant on our partners for access to key gene-editing technology for manufacturing our product candidates and for the development of UCART19 and ALLO-501.
- Our product candidates are based on novel technologies, which makes it difficult to predict the time and cost of product candidate development and obtaining regulatory approval.
- Our business is highly dependent on the success of UCART19. If we or Servier are unable to obtain approval for UCART19 and effectively commercialize UCART19 for the treatment of patients in its approved indications, our business would be significantly harmed.
- Our product candidates may cause undesirable side effects or have other properties, our clinical trials may fail to demonstrate the safety and efficacy of any of our product candidates, and we may encounter substantial delays in our clinical trials, or may not be able to conduct our trials on the timelines we expect.
- We rely and will continue to rely on third parties, including Servier, to conduct our clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval of or commercialize our product candidates.
- We face significant competition from other biotechnology and pharmaceutical companies, and our operating results will suffer if we fail to compete effectively.
- We are highly dependent on our key personnel, and if we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.
- We will need substantial additional financing to develop our products and implement our operating plans. If we fail to obtain additional financing, we may be unable to complete the development and commercialization of our product candidates.
- We depend on intellectual property licensed from third parties and termination of any of these licenses could result in the loss of significant rights, which would harm our business.
- If our efforts to protect the proprietary nature of the intellectual property related to our technologies are not adequate, we may not be able to compete effectively in our market.

- Third-party claims of intellectual property infringement may prevent or delay our product discovery and development efforts.

Certain Preliminary Financial Data

As of September 30, 2018, we had approximately $399.5 million of cash, cash equivalents and marketable securities. This amount is unaudited and preliminary, is subject to completion of financial closing procedures that could result in changes to the amount, and does not present all information necessary for an understanding of our financial condition as of September 30, 2018.

Corporate and Other Information

We were incorporated in Delaware in November 2017. Our principal executive offices are located at 210 East Grand Avenue, South San Francisco, California 94080, and our telephone number is (650) 457-2700. Our corporate website address is www.allogene.com. Information contained on or accessible through our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is an inactive textual reference only.

This prospectus contains references to our trademarks and to trademarks belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without the ® or TM symbols, but such references are not intended to indicate, in any way, that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. We do not intend our use or display of other companies' trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

Implications of Being an Emerging Growth Company

As a company with less than $1.07 billion in revenue during our last fiscal year, we qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act (JOBS Act), enacted in April 2012. An "emerging growth company" may take advantage of reduced reporting requirements that are otherwise applicable to public companies. These provisions include, but are not limited to:

- not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended (Sarbanes-Oxley Act);
- reduced disclosure obligations regarding executive compensation in our periodic reports, proxy statements and registration statements; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and any golden parachute payments not previously approved.

We may use these provisions until, at latest, the last day of our fiscal year following the fifth anniversary of the completion of this offering. If certain events occur prior to the end of such five-year period, including if we become a "large accelerated filer," our annual gross revenues 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.

We have elected to take advantage of certain of the reduced disclosure obligations in the registration statement of which this prospectus is a part and may elect to take advantage of other reduced reporting requirements in future filings. As a result, the information that we provide to our stockholders may be different than you might receive from other public reporting companies in which you hold equity interests.

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. We have elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

The Offering

Common stock offered by us	18,000,000 shares
Option to purchase additional shares	The underwriters have a 30-day option to purchase up to a total of 2,700,000 additional shares of common stock.
Common stock to be outstanding immediately after this offering	115,226,841 shares (or 117,926,841 shares if the underwriters exercise their option to purchase additional shares in full).
Use of proceeds	We intend to use the net proceeds from this offering to fund research and development of our product candidates and development programs, including our ongoing and planned clinical trials of UCART19, ALLO-501 and ALLO-715, as well as the expansion of our facilities, and for working capital and other general corporate purposes, including costs and expenses associated with being a public company. See "Use of Proceeds."
Risk factors	You should read the section entitled "Risk Factors" for a discussion of certain of the factors to consider carefully before deciding to purchase any shares of our common stock.
Nasdaq Global Select Market symbol	"ALLO"
Directed share program	At our request, the underwriters have reserved up to 900,000 shares of our common stock offered by this prospectus for sale, at the initial public offering price, to our directors and officers and certain other parties related to us. Shares purchased by our directors and officers will be subject to the 180-day lock-up restriction described in the "Underwriting" section of this prospectus. The number of shares of common stock available for sale to the general public will be reduced to the extent these individuals purchase such reserved shares. Any reserved shares that are not so purchased will be offered by the underwriters to the general public on the same basis as the other shares offered by this prospectus.

The number of shares of our common stock to be outstanding after this offering set forth above is based on 97,226,841 shares of common stock outstanding as of June 30, 2018, after giving effect to (i) the conversion of all our outstanding shares of convertible preferred stock as of June 30, 2018 into an aggregate of 61,655,922 shares of common stock in connection with the closing of this offering and (ii) the issuance of 7,856,176 shares of common stock upon the automatic share settlement of the 2018 Notes in connection with the closing of this offering, and excludes:

- 7,344,225 shares of common stock issuable upon the exercise of outstanding stock options as of June 30, 2018, at a weighted-average exercise price of $2.27 per share;
- 2,347,275 shares of common stock issuable upon the exercise of outstanding stock options granted after June 30, 2018, at a weighted-average exercise price of $6.87 per share;

- 9,335,850 shares of common stock reserved for future issuance under our amended and restated 2018 equity incentive plan (2018 Plan), as well as any automatic increases in the number of shares of our common stock reserved for future issuance under this plan, which became effective upon the execution and delivery of the underwriting agreement for this offering (including 1,112,753 shares of common stock reserved for issuance under our prior amended and restated 2018 equity incentive plan (Prior Plan), which shares were added to the 2018 Plan upon its effectiveness); and
- 1,160,000 shares of common stock reserved for future issuance under our 2018 employee stock purchase plan (ESPP), as well as any automatic increases in the number of shares of our common stock reserved for future issuance under this plan, which became effective upon the execution and delivery of the underwriting agreement for this offering.

Unless otherwise indicated, all information contained in this prospectus assumes or gives effect to:

- the conversion of all our outstanding shares of convertible preferred stock as of June 30, 2018, into an aggregate of 61,655,922 shares of common stock in connection with the closing of this offering;
- the issuance of 7,856,176 shares of common stock upon the automatic share settlement of the 2018 Notes in connection with the closing of this offering;
- no exercise by the underwriters of their option to purchase up to a total of 2,700,000 additional shares of our common stock;
- no exercise of the outstanding options described above;
- the filing and effectiveness of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws immediately prior to the closing of this offering; and
- a 1-for-5.25 forward stock split of our common effected on October 1, 2018.

Summary Financial Data

The following tables set forth a summary of our financial data as of, and for the periods ended on, the dates indicated. We have derived the summary statement of operations and comprehensive loss data for the period from November 30, 2017 (inception) to December 31, 2017 from our audited financial statements included elsewhere in this prospectus. We have derived the summary statement of operations and comprehensive loss data for the six months ended June 30, 2018 and the summary balance sheet data as of June 30, 2018 from our unaudited interim financial statements included elsewhere in this prospectus. Our unaudited interim financial statements were prepared on the same basis as our audited financial statements and, in our opinion, reflect all adjustments, consisting only of normal recurring adjustments, that are necessary for the fair presentation of the financial information in those statements. The summary financial data included in this section is not intended to replace the financial statements and related notes included elsewhere in this prospectus. You should read the following summary financial data in conjunction with the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results to be expected for any other period in the future, and our interim results are not necessarily indicative of the results to be expected for the full year or any other period.

	Period from November 30, 2017 (Inception) to December 31, 2017	Six Months Ended June 30, 2018 (Unaudited)
	(In thousands, except share and per share data)	
Statements of Operations and Comprehensive Loss Data:		
Operating expenses:		
Research and development	$ —	$ 122,486
General and administrative	2	15,123
Total operating expenses	2	137,609
Loss from operations	(2)	(137,609)
Interest and other income, net	—	110
Net and comprehensive loss	$ (2)	$ (137,499)
Net loss per share, basic and diluted(1)	$ 0.00	$ (9.42)
Weighted-average number of shares used in computing net loss per share, basic and diluted(1)	26,249,993	14,600,379
Pro forma net loss per share, basic and diluted (unaudited)(1)		$ (3.12)
Weighted-average number of shares used in computing pro forma net loss per share, basic and diluted (unaudited)(1)		44,011,274

(1) See Notes 2 and 11 to our financial statements included elsewhere in this prospectus for a description of how we compute basic and diluted net loss per share and basic and diluted unaudited pro forma net loss per share, and the weighted-average number of shares used in the computation of these per share amounts.

	As of June 30, 2018		
	Actual	Pro Forma(2)	Pro Forma as Adjusted(3)
		(Unaudited) (In thousands)	
Balance Sheet Data:			
Cash and cash equivalents	$ 143,927	$ 410,827	$ 708,647
Total assets	148,845	415,745	713,565
Working capital(1)	129,519	396,419	694,239
Total liabilities	17,233	17,233	17,233
Convertible preferred stock	411,052	—	—
Subscriptions receivable from preferred stockholders	(150,000)	—	—
Accumulated deficit	(137,522)	(162,034)	(162,034)
Total stockholders' (deficit) equity	(129,440)	398,512	696,332

(1) We define working capital as current assets less current liabilities. See our financial statements and related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

(2) The pro forma balance sheet data gives effect to (i) the filing and effectiveness of our amended and restated certificate of incorporation immediately prior to the closing of this offering, (ii) the conversion of all outstanding shares of our convertible preferred stock into 61,655,922 shares of our common stock immediately upon the closing of this offering, (iii) the receipt of $150.0 million in cash proceeds from our convertible preferred stockholders in July and August 2018 related to subscriptions receivable, (iv) the receipt of $116.9 million in net cash proceeds from the sale of the 2018 Notes in September 2018 (which is reflected in cash and cash equivalents, common stock, and additional paid-in capital) and (v) the settlement of the 2018 Notes into 7,856,176 shares of our common stock and an aggregate charge to accumulated deficit of $24.5 million, of which $21.2 million relates to the loss resulting in the change in fair value of the 2018 Notes from the issuance date through their settlement and $3.3 million relates to the recognition of debt issuance costs that will be expensed on the 2018 Notes issuance date.

(3) The pro forma as adjusted balance sheet data gives effect to (i) the pro forma adjustments set forth in footnote (2) above and (ii) our receipt of net proceeds from the sale of 18,000,000 shares of our common stock at the initial public offering price of $18.00 per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this prospectus, including our financial statements and the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations," before deciding whether to invest in our common stock. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and growth prospects. In such an event, the market price of our common stock could decline and you may lose all or part of your investment. 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 Business and Industry

We have a limited operating history and face significant challenges and expense as we build our capabilities.

We were incorporated in 2017 and acquired certain rights to UCART19 and other allogeneic CAR T cell therapy assets from Pfizer in April 2018. We have a limited operating history and are subject to the risks inherent in any newly-formed organization, including, among other things, risks that we may not be able to hire sufficient qualified personnel and establish operating controls and procedures. We currently do not have complete in-house resources to enable our allogeneic CAR T platform. We are heavily reliant on several support services from Pfizer through a Transition Services Agreement (TSA), including certain research and development and general and administrative services. As we build our own capabilities, we expect to encounter risks and uncertainties frequently experienced by growing companies in new and rapidly evolving fields, including the risks and uncertainties described herein. Our ability to rely on services from Pfizer is limited for a period of time, and if we are unable to build our own capabilities, our operating and financial results could differ materially from our expectations, and our business could suffer.

As a company, we have not progressed any product candidates through clinical development to commercialization. Our collaboration partner, Servier, conducts the CALM and PALL clinical trials of UCART19, and we cannot be certain that our planned clinical trials of our other product candidates will begin or be completed on time, if at all.

We have incurred net losses in every period since our inception and anticipate that we will incur substantial net losses in the future.

We are a clinical-stage biopharmaceutical company and investment in biopharmaceutical product development is highly speculative because it entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate effect or an acceptable safety profile, gain regulatory approval and become commercially viable. We have only recently acquired rights to an allogeneic CAR T platform of primarily early-stage product candidates and have no products approved for commercial sale and have not generated any revenue from product sales to date, and we will continue to incur significant research and development and other expenses related to our ongoing operations. As a result, we are not profitable and have incurred net losses in each period since our inception. For the six months ended June 30, 2018, we reported a net loss of $137.5 million. As of June 30, 2018, we had an accumulated deficit of $137.5 million.

We expect to incur significant expenditures for the foreseeable future, and we expect these expenditures to increase as we continue our research and development of, and seek regulatory approvals for, product candidates based on our engineered allogeneic T cell platform, including UCART19, ALLO-501 and ALLO-715. Even if we succeed in commercializing one or more of our product candidates, we will continue to incur substantial research and development and other expenditures to develop and market additional product candidates. We may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenue. Our prior losses and expected future losses have had and will continue to have an adverse effect on our stockholders' equity and working capital.

Our engineered allogeneic T cell product candidates represent a novel approach to cancer treatment that creates significant challenges for us.

We are developing a pipeline of allogeneic T cell product candidates that are engineered from healthy donor T cells to express CARs and are intended for use in any patient with certain cancers. Advancing these novel product candidates creates significant challenges for us, including:

- manufacturing our product candidates to our specifications and in a timely manner to support our clinical trials, and, if approved, commercialization;
- sourcing clinical and, if approved, commercial supplies for the raw materials used to manufacture our product candidates;
- understanding and addressing variability in the quality of a donor's T cells, which could ultimately affect our ability to produce product in a reliable and consistent manner;
- educating medical personnel regarding the potential side effect profile of our product candidates, if approved, such as the potential adverse side effects related to CRS, neurotoxicity, GvHD, prolonged cytopenia and neutropenic sepsis;
- using medicines to manage adverse side effects of our product candidates which may not adequately control the side effects and/or may have a detrimental impact on the efficacy of the treatment;
- conditioning patients with chemotherapy and ALLO-647 or other lymphodepletion agents in advance of administering our product candidates, which may increase the risk of adverse side effects;
- obtaining regulatory approval, as the FDA and other regulatory authorities have limited experience with development of allogeneic T cell therapies for cancer; and
- establishing sales and marketing capabilities upon obtaining any regulatory approval to gain market acceptance of a novel therapy.

We are heavily reliant on our partners for access to key gene editing technology for manufacturing our product candidates and for the development of UCART19 and ALLO-501.

A critical aspect to manufacturing allogeneic T cell product candidates involves gene editing the healthy donor T cells in an effort to avoid GvHD and to limit the patient's immune system from attacking the allogeneic T cells. GvHD results when allogeneic T cells start recognizing the patient's normal tissue as foreign. We use Cellectis's TALEN gene-editing technology to inactivate a gene coding for TCRα, a key component of the natural antigen receptor of T cells, to cause the engineered T cells to be incapable of recognizing foreign antigens. Accordingly, when injected into a patient, the intent is for the engineered T cell not to recognize the tissue of the patient as foreign and thus avoid attacking the patient's tissue. In addition, we use TALEN gene editing to inactivate the CD52 gene in donor T cells, which codes for the target of an anti-CD52 monoclonal antibody. Anti-CD52 monoclonal antibodies deplete CD52 expressing T cells in patients while sparing therapeutic allogeneic T cells lacking CD52. By administering an anti-CD52 antibody prior to infusing our product candidates, we believe we have the potential to reduce a patient's immune system from destroying the engineered allogeneic T cells.

We rely on an agreement with Cellectis for rights to use TALEN and electroporation technology for 15 select targets, including BCMA, Flt3, CD70, DLL3 and other targets included in our pipeline. We also rely on Cellectis, through our agreement with Servier, for rights to UCART19, ALLO-501 and potentially one additional target. We would need an additional license from Cellectis or access to other gene-editing technology to research and develop product candidates directed at targets not covered by our existing agreements with Cellectis and Servier. In addition, the Cellectis gene-editing technology may fail to produce viable product candidates. Moreover, both Servier and Cellectis may terminate our respective agreements in the event of a material breach of the agreements, or upon certain insolvency events. If our agreements were terminated or we required other gene editing technology, such a license or technology may not be available to us on reasonable terms, or at all, particularly given the limited number of alternative gene-editing technologies in the market.

In addition, under the Servier Agreement, Servier is responsible for conducting the two clinical trials of UCART19, CALM and PALL. We plan to support Servier in advancing the CALM and PALL trials, and we expect Servier to support us in submitting an IND in the first half of 2019 for our second anti-CD19 allogeneic T cell product candidate, ALLO-501, for the treatment of patients with NHL. Other than the agreed-upon global research and development plan for UCART19, we have limited control over the nature or timing of Servier's clinical trials and limited visibility into their day-to-day activities. In addition, we rely on Servier for access to data from the UCART19 trials, and as a result at any given time we may not be aware of one or more significant trial developments. If UCART19 encounters safety or efficacy problems, manufacturing problems, developmental delays, regulatory issues or other problems, our development plans and business would be significantly harmed. Additionally, other clinical trials being conducted by Servier may at times receive higher priority than research on our programs. Moreover, if Servier does not provide its share of support for the UCART19 and ALLO-501 clinical trials, or does not agree with our global development plan and budget for ALLO-501, our expenses may be greater than we currently expect and we may have difficulty progressing ALLO-501 in a timely manner.

The gene-editing technology we use is relatively new, and if we are unable to use this technology in our intended product candidates, our revenue opportunities will be materially limited.

Cellectis's TALEN technology involves a relatively new approach to gene editing, using sequence-specific DNA-cutting enzymes, or nucleases, to perform precise and stable modifications in the DNA of living-cells and organisms. Although Cellectis has generated nucleases for many specific gene sequences, it has not created nucleases for all gene sequences that we may seek to target, and we may not be able do so, which could limit the usefulness of this technology. This technology may also not be shown to be effective in clinical studies that Cellectis, we or other licensees of Cellectis technology may conduct, or may be associated with safety issues that may negatively affect our development programs.

In addition, the gene-editing industry is rapidly developing, and our competitors may introduce new technologies that render our technology obsolete or less attractive. New technology could emerge at any point in the development cycle of our product candidates. As competitors use or develop new technologies, any failures of such technology could adversely impact our program. We also may be placed at a competitive disadvantage, and competitive pressures may force us to implement new technologies at a substantial cost. In addition, our competitors may have greater financial, technical and personnel resources that allow them to enjoy technological advantages and may in the future allow them to implement new technologies before we can. We cannot be certain that we will be able to implement technologies on a timely basis or at a cost that is acceptable to us. If we are unable to maintain technological advancements consistent with industry standards, our operations and financial condition may be adversely affected.

Our product candidates are based on novel technologies, which makes it difficult to predict the time and cost of product candidate development and obtaining regulatory approval.

We have concentrated our research and development efforts on our engineered allogeneic T cell therapy and our future success depends on the successful development of this therapeutic approach. We are in the early stages of developing our platform and there can be no assurance that any development problems we experience in the future will not cause significant delays or unanticipated costs, or that such development problems can be overcome. We may also experience delays in developing a sustainable, reproducible and scalable manufacturing process or transferring that process to commercial partners, which may prevent us from completing our clinical studies or commercializing our products on a timely or profitable basis, if at all. In addition, since we are in the early stages of clinical development, we do not know the doses to be evaluated in pivotal trials or, if approved, commercially. Finding a suitable dose may delay our anticipated clinical development timelines. In addition, our expectations with regard to our scalability and costs of manufacturing may vary significantly as we develop our product candidates and understand these critical factors.

In addition, the clinical study requirements of the FDA, EMA and other regulatory agencies and the criteria these regulators use to determine the safety and efficacy of a product candidate are determined according to the type, complexity, novelty and intended use and market of the potential products. The regulatory approval process

for novel product candidates such as ours can be more complex and consequently more expensive and take longer than for other, better known or extensively studied pharmaceutical or other product candidates. Approvals by the EMA and FDA for existing autologous CAR T therapies, such as Kymriah and Yescarta, may not be indicative of what these regulators may require for approval of our therapies. Also, while we expect reduced variability in our products candidates compared to autologous products, we do not have significant clinical data supporting any benefit of lower variability. More generally, approvals by any regulatory agency may not be indicative of what any other regulatory agency may require for approval or what such regulatory agencies may require for approval in connection with new product candidates. Moreover, our product candidates may not perform successfully in clinical trials or may be associated with adverse events that distinguish them from the autologous CAR T therapies that have previously been approved. For instance, allogeneic product candidates may result in GvHD not experienced with autologous products. Unexpected clinical outcomes would significantly impact our business.

Our business is highly dependent on the success of UCART19. If we or Servier are unable to obtain approval for UCART19 and effectively commercialize UCART19 for the treatment of patients in its approved indications, our business would be significantly harmed.

Our business and future success depends on our ability to obtain regulatory approval of, and then successfully commercialize, our most advanced product candidate, UCART19. UCART19 is in the early stages of development and has only been administered in a limited number of patients in Phase 1 clinical trials. The results to date may not predict results for our planned trial or any future studies of UCART19 or any other allogeneic CAR T product candidate. Because UCART19 is the first allogeneic product to be evaluated in the clinic, its failure, or the failure of other allogeneic T cell therapies, may significantly influence physicians' and regulators' opinions in regards to the viability of our entire pipeline of allogeneic T cell therapies, particularly if high or uncontrolled rates of GvHD are observed. If significant GvHD events are observed with the administration of UCART19, or if it is viewed as less safe or effective than autologous therapies, our ability to develop other allogeneic therapies may be significantly harmed. We are also dependent on Servier to conduct the UCART19 trials in a timely and appropriate manner. If Servier does not conduct the trials on the timeline we expect or otherwise fails to support the trials, our leadership position in the allogeneic CAR T industry and ability to progress additional product candidates may be significantly harmed.

All of our product candidates, including UCART19, will require additional clinical and non-clinical development, regulatory review and approval in multiple jurisdictions, substantial investment, access to sufficient commercial manufacturing capacity and significant marketing efforts before we can generate any revenue from product sales. In addition, because UCART19 is our most advanced product candidate, and because our other product candidates are based on similar technology, if UCART19 encounters safety or efficacy problems, manufacturing problems, developmental delays, regulatory issues or other problems, our development plans and business would be significantly harmed.

Our product candidates may cause undesirable side effects or have other properties that could halt their clinical development, prevent their regulatory approval, limit their commercial potential or result in significant negative consequences.

Undesirable or unacceptable side effects caused by our product candidates could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other comparable foreign regulatory authorities. Results of our clinical trials could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics. Approved autologous CAR T therapies and those under development have shown frequent rates of CRS and neurotoxicity, and adverse events have resulted in the death of patients. We expect similar adverse events for allogeneic CAR T product candidates. Our allogeneic CAR T cell product candidates undergo gene engineering by using lentivirus and TALEN nucleases that can cause insertion, deletion, or chromosomal translocation. These changes can cause allogeneic CAR T cells to proliferate uncontrollably and may cause

adverse events. In addition, our allogeneic CAR T cell product candidates may cause unique adverse events related to the differences between the donor and patients, such as GvHD, infusion reaction, or prolong persistence of donor cells in the patients.

In the PALL and CALM clinical trials, the most common severe or life threatening adverse events resulted from CRS, neurotoxicity, skin GvHD, prolonged cytopenia and neutropenic sepsis. Multiple patients have also died in these trials, including two deaths that were attributed to UCART19, as further described under "Business—Product Pipeline and Development Strategy—UCART19—Clinical Data". In the future, patients may experience additional adverse events related to the lymphodepletion regimen as well as UCART19, some of which may result in death. As we treat more patients with UCART19 in our clinical trials, new less common side effects may also emerge.

As an anti-CD19 CAR T cell therapy, we expect ALLO-501 to cause similar toxicities as UCART19. Other of our allogeneic CAR T product candidates may also cause similar or worse toxicities. For instance, because ALLO-715 may require a higher dose than UCART19 and could be used in a more elderly patient population, it is possible that the risk of GvHD or other adverse events for ALLO-715 could be greater than UCART19.

If unacceptable toxicities arise in the development of our product candidates, we or Servier could suspend or terminate our trials or the FDA or comparable foreign regulatory authorities could order us to cease clinical trials or deny approval of our product candidates for any or all targeted indications. The data safety monitoring board may also suspend or terminate a clinical trial at any time on various grounds, including a finding that the research patients are being exposed to an unacceptable health risk, including risks inferred from other unrelated immunotherapy trials. Treatment-related side effects could also affect patient recruitment or the ability of enrolled subjects to complete the trial or result in potential product liability claims. In addition, these side effects may not be appropriately recognized or managed by the treating medical staff, as toxicities resulting from T cell therapy are not normally encountered in the general patient population and by medical personnel. We have trained and expect to have to train medical personnel using CAR T cell product candidates to understand the side effect profile of our product candidates for both our clinical trials and upon any commercialization of any of our product candidates. Inadequate training in recognizing or managing the potential side effects of our product candidates could result in patient deaths. Any of these occurrences may harm our business, financial condition and prospects significantly.

Our clinical trials may fail to demonstrate the safety and efficacy of any of our product candidates, which would prevent or delay regulatory approval and commercialization.

Before obtaining regulatory approvals for the commercial sale of our product candidates, including UCART19, we must demonstrate through lengthy, complex and expensive preclinical testing and clinical trials that our product candidates are both safe and effective for use in each target indication. Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical trial process. The results of preclinical studies and early clinical trials of our product candidates may not be predictive of the results of later-stage clinical trials, including in any post-approval studies of UCART19.

There is typically an extremely high rate of attrition from the failure of product candidates proceeding through clinical trials. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy profile despite having progressed through preclinical studies and initial clinical trials. A number of companies in the biopharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy, insufficient durability of efficacy or unacceptable safety issues, notwithstanding promising results in earlier trials. Most product candidates that commence clinical trials are never approved as products.

In addition, for UCART19 and any future trials that may be completed, we cannot guarantee that the FDA or foreign regulatory authorities will interpret the results as we do, and more trials could be required before we submit our product candidates for approval. To the extent that the results of the trials are not satisfactory to the

FDA or foreign regulatory authorities for support of a marketing application, approval of our product candidates may be significantly delayed, or we may be required to expend significant additional resources, which may not be available to us, to conduct additional trials in support of potential approval of our product candidates.

Interim "top line" and preliminary data from our clinical trials 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 publish interim "top line" or preliminary data from our clinical studies. Interim data from clinical trials that we may complete are 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. For instance, we and Servier have published preliminary data from the CALM and PALL clinical trials, however such results are preliminary in nature, do not bear statistical significance and should not be viewed as predictive of ultimate success. It is possible that such results will not continue or may not be repeated in ongoing or future clinical trials of UCART19 or our other product candidates.

Preliminary or "top line" 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, interim and preliminary data should be viewed with caution until the final data are available. Adverse differences between preliminary or interim data and final data could significantly harm our business prospects.

We may not be able to file INDs to commence additional clinical trials on the timelines we expect, and even if we are able to, the FDA may not permit us to proceed.

We plan to submit an IND to the FDA to initiate a clinical trial of ALLO-715 targeting BCMA for the treatment of patients with R/R multiple myeloma in 2019, and an IND in the first half of 2019 for ALLO-501 in the treatment of patients with R/R NHL. However, our timing of filing on these product candidates is dependent on further pre-clinical and manufacturing success. We cannot be sure that submission of an IND or IND amendment will result in the FDA allowing testing and clinical trials to begin, or that, once begun, issues will not arise that suspend or terminate such clinical trials. Additionally, even if such regulatory authorities agree with the design and implementation of the clinical trials set forth in an IND or clinical trial application, we cannot guarantee that such regulatory authorities will not change their requirements in the future.

We may encounter substantial delays in our clinical trials, or may not be able to conduct our trials on the timelines we expect.

Clinical testing is expensive, time consuming and subject to uncertainty. We cannot guarantee that any clinical studies will be conducted as planned or completed on schedule, if at all. Even if these trials begin as planned, issues may arise that could suspend or terminate such clinical trials. A failure of one or more clinical studies can occur at any stage of testing, and our future clinical studies may not be successful. Events that may prevent successful or timely completion of clinical development include:

- inability to generate sufficient preclinical, toxicology or other in vivo or in vitro data to support the initiation of clinical studies;
- delays in sufficiently developing, characterizing or controlling a manufacturing process suitable for advanced clinical trials;
- delays in developing suitable assays for screening patients for eligibility for trials with respect to certain product candidates;
- delays in reaching a consensus with regulatory agencies on study design;
- delays in reaching agreement on acceptable terms with prospective CROs and clinical study sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical study sites;

- delays in obtaining required institutional review board (IRB) approval at each clinical study site;
- imposition of a temporary or permanent clinical hold by regulatory agencies for a number of reasons, including after review of an IND application or amendment, or equivalent application or amendment; as a result of a new safety finding that presents unreasonable risk to clinical trial participants; a negative finding from an inspection of our clinical study operations or study sites; developments on trials conducted by competitors for related technology that raises FDA concerns about risk to patients of the technology broadly; or if FDA finds that the investigational protocol or plan is clearly deficient to meet its stated objectives;
- delays in recruiting suitable patients to participate in our clinical studies;
- difficulty collaborating with patient groups and investigators;
- failure by our CROs, other third parties or us to adhere to clinical study requirements;
- failure to perform in accordance with the FDA's good clinical practice (GCP) requirements or applicable regulatory guidelines in other countries;
- transfer of manufacturing processes to any new CMO or our own manufacturing facilities or any other development or commercialization partner for the manufacture of product candidates;
- delays in having patients complete participation in a study or return for post-treatment follow-up;
- patients dropping out of a study;
- occurrence of adverse events associated with the product candidate that are viewed to outweigh its potential benefits;
- changes in regulatory requirements and guidance that require amending or submitting new clinical protocols;
- changes in the standard of care on which a clinical development plan was based, which may require new or additional trials;
- the cost of clinical studies of our product candidates being greater than we anticipate;
- clinical studies of our product candidates producing negative or inconclusive results, which may result in our deciding, or regulators requiring us, to conduct additional clinical studies or abandon product development programs;
- delays or failure to secure supply agreements with suitable raw material suppliers, or any failures by suppliers to meet our quantity or quality requirements for necessary raw materials; and
- delays in manufacturing, testing, releasing, validating, or importing/exporting sufficient stable quantities of our product candidates for use in clinical studies or the inability to do any of the foregoing.

Any inability to successfully complete preclinical and clinical development could result in additional costs to us or impair our ability to generate revenue. In addition, if we make manufacturing or formulation changes to our product candidates, we may be required to or we may elect to conduct additional studies to bridge our modified product candidates to earlier versions. Clinical study delays could also shorten any periods during which our products have patent protection and may allow our competitors to bring products to market before we do, which could impair our ability to successfully commercialize our product candidates and may harm our business and results of operations.

Monitoring safety of patients receiving our product candidates is challenging, which could adversely affect our ability to obtain regulatory approval and commercialize.

For our ongoing clinical trials of UCART19 and in our planned clinical trials of other product candidates, Servier has contracted with and is expected to continue to contract with academic medical centers and hospitals

experienced in the assessment and management of toxicities arising during clinical trials. Nonetheless, these centers and hospitals may have difficulty observing patients and treating toxicities, which may be more challenging due to personnel changes, inexperience, shift changes, house staff coverage or related issues. This could lead to more severe or prolonged toxicities or even patient deaths, which could result in us or the FDA delaying, suspending or terminating one or more of our clinical trials, and which could jeopardize regulatory approval. We also expect the centers using UCART19, if approved, on a commercial basis could have similar difficulty in managing adverse events. Medicines used at centers to help manage adverse side effects of UCART19 may not adequately control the side effects and/or may have a detrimental impact on the efficacy of the treatment. Use of these medicines may increase with new physicians and centers administering our product candidates.

If we encounter difficulties enrolling patients in our clinical trials, our clinical development activities could be delayed or otherwise adversely affected.

We may experience difficulties in patient enrollment in our clinical trials for a variety of reasons. The timely completion of clinical trials in accordance with their protocols depends, among other things, on our ability to enroll a sufficient number of patients who remain in the study until its conclusion. The enrollment of patients depends on many factors, including:

- the patient eligibility criteria defined in the protocol;
- the size of the patient population required for analysis of the trial's primary endpoints;
- the proximity of patients to study sites;
- the design of the trial;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;
- our ability to obtain and maintain patient consents; and
- the risk that patients enrolled in clinical trials will drop out of the trials before the infusion of our product candidates or trial completion.

In addition, our clinical trials will compete with other clinical trials for product candidates that are in the same therapeutic areas as our product candidates, and this competition will reduce the number and types of patients available to us because some patients who might have opted to enroll in our trials may instead opt to enroll in a trial being conducted by one of our competitors. Since the number of qualified clinical investigators is limited, some of our clinical trial sites are also being used by some of our competitors, which may reduce the number of patients who are available for our clinical trials in that clinical trial site.

Moreover, because our product candidates represent a departure from more commonly used methods for cancer treatment, potential patients and their doctors may be inclined to use conventional therapies, such as chemotherapy and hematopoietic cell transplantation or autologous CAR T cell therapies, rather than enroll patients in our clinical trial. Patients eligible for allogeneic CAR T cell therapies but ineligible for autologous CAR T cell therapies due to aggressive cancer and inability to wait for autologous CAR T cell therapies may be at greater risk for complications and death from therapy.

Delays in patient enrollment may result in increased costs or may affect the timing or outcome of our ongoing clinical trial and planned clinical trials, which could prevent completion of these trials and adversely affect our ability to advance the development of our product candidates.

Clinical trials are expensive, time-consuming and difficult to design and implement.

Human clinical trials are expensive and difficult to design and implement, in part because they are subject to rigorous regulatory requirements. Because our allogeneic T cell product candidates are based on new

technologies and will require the creation of inventory of mass-produced, off-the-shelf product, we expect that they will require extensive research and development and have substantial manufacturing and processing costs. In addition, costs to treat patients with R/R cancer and to treat potential side effects that may result from our product candidates can be significant. We also have less control of costs incurred by our development partner, Servier, for the clinical trials of UCART19. Accordingly, our clinical trial costs are likely to be significantly higher than for more conventional therapeutic technologies or drug products.

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

The FDA often approves new therapies initially only for use in patients with R/R metastatic disease. We expect to initially seek approval of UCART19, with Servier, and our other product candidates in this setting. Subsequently, for those products that prove to be sufficiently beneficial, if any, we would expect to seek approval in earlier lines of treatment and potentially as a first line therapy. There is no guarantee that our product candidates, even if approved, would be approved for earlier lines of therapy, and, prior to any such approvals, we will have to conduct additional clinical trials, including potentially comparative trials against approved therapies. We are also targeting a similar patient population as autologous CAR T product candidates, including approved autologous CAR T products. Our therapies may not be as safe and effective as autologous CAR T therapies and may only be approved for patients who are ineligible for autologous CAR T 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 second or later lines of 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 scientific literature, surveys of clinics, patient foundations, or market research and may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of these cancers. The number of patients may turn out to be lower than expected. Additionally, the potentially addressable patient population for our product candidates may be limited or may not be amenable to treatment with our product candidates. For instance, we expect our most advanced product candidate, UCART19, to initially target a small patient population that suffers from R/R ALL. Even if we obtain significant market share for our product candidates, because the potential target populations are small, we may never achieve profitability without obtaining regulatory approval for additional indications.

If we fail to develop additional product candidates, our commercial opportunity will be limited.

One of our core strategies is to pursue clinical development of additional product candidates beyond UCART19, including ALLO-501 and ALLO-715. Developing, obtaining regulatory approval and commercializing additional CAR T cell product candidates will require substantial additional funding beyond the net proceeds of this offering and is prone to the risks of failure inherent in medical product development. We cannot provide you any assurance that we will be able to successfully advance any of these additional product candidates through the development process.

Even if we receive FDA approval to market additional product candidates for the treatment of cancer, we cannot assure you that any such product candidates will be successfully commercialized, widely accepted in the marketplace or more effective than other commercially available alternatives. If we are unable to successfully develop and commercialize additional product candidates, our commercial opportunity will be limited. Moreover, a failure in obtaining regulatory approval of additional product candidates may have a negative effect on the approval process of any other, or result in losing approval of any approved, product candidate.

Our development strategy relies on incorporating an anti-CD52 monoclonal antibody as part of the lymphodepletion preconditioning regimen prior to infusing allogeneic CAR T cell product candidates.

We plan to utilize an anti-CD52 monoclonal antibody as part of a preconditioning regimen to be infused prior to infusing our product candidates, such as UCART19, ALLO-501 and ALLO-715. While we believe an

anti-CD52 antibody can reduce the likelihood of a patient's immune system from rejecting engineered allogeneic T cells, and thereby may enable a window of persistence during which such engineered allogeneic T cells can actively target and destroy cancer cells, the antibody may not have the benefits that we anticipate and could have other adverse effects. For instance, our lymphodepletion regimen, including using an anti-CD52 antibody, will cause a transient and sometimes prolonged immune suppression.

In the ongoing CALM and PALL trials, we use a commercially available monoclonal antibody, alemtuzumab, that binds CD52. To secure our own readily available source of anti-CD52 antibody, we are developing our own monoclonal anti-CD52 antibody, ALLO-647. We submitted a drug master file (DMF) to the FDA in August 2018 for ALLO-647. If the FDA activates the DMF, Servier will be authorized to reference the DMF in its IND proposing use of ALLO-647 in combination with UCART19 in clinical trials. There can be no assurance that the FDA will activate our DMF in a timely manner or at all. We initially plan to use ALLO-647 in the safety dose-expansion phase of the ongoing CALM clinical trial to further evaluate and optimize its use as a lymphodepleting agent. We plan to utilize the results from the CALM trial to progress ALLO-647 in our planned clinical trials of ALLO-501 and ALLO-715. However, we may be unable to agree with Servier an appropriate arrangement for the use of ALLO-647 in the CALM trial, and we are dependent on Servier's ability to progress the CALM trial. In addition, we may have to license certain rights relating to ALLO-647 from third parties. If we are unable to secure such rights, we may not be able to progress the commercialization of ALLO-647.

If we are unable to successfully develop ALLO-647 in the timeframe we anticipate, or at all, or if the FDA does not approve the use of ALLO-647 in combination with our allogeneic T cell product candidates, we may be unable to source alemtuzumab and our engineered allogeneic T cell product candidates may be less effective, which could result in delays in our product development efforts and/or the commercial potential of our product candidates.

We intend to operate our own manufacturing facility, which will require significant resources and we may fail to successfully operate our facility, which could adversely affect our clinical trials and the commercial viability of our product candidates.

We may not be able to achieve clinical or commercial manufacturing and cell processing on our own or at our CMO, including mass-producing off-the-shelf product to satisfy demands for any of our product candidates. While we believe the manufacturing and processing approaches are appropriate to support our clinical product development, we have limited experience in managing the allogeneic T cell engineering process, and our allogeneic processes may be more difficult or more expensive than the approaches taken by our competitors. We cannot be sure that the manufacturing processes employed by us will result in T cells that will be safe and effective.

We plan to build a separate manufacturing facility with clinical and commercial supply manufacturing capabilities, but we have not identified a location for these activities or secured any space for these activities.

Our operations remain subject to review and oversight by the FDA and the FDA could object to our use of our manufacturing facility. We must first receive approval from the FDA prior to licensure to manufacture our product candidates, which we may never obtain. Even if approved, we would be subject to ongoing periodic unannounced inspection by the FDA and corresponding state agencies to ensure strict compliance with current good manufacturing practices (cGMPs) and other government regulations. Our license to manufacture product candidates will be subject to continued regulatory review.

Our cost of goods development is at an early stage. The actual cost to manufacture and process our product candidates could be greater than we expect and could materially and adversely affect the commercial viability of our product candidates.

The manufacture of biopharmaceutical products is complex and requires significant expertise, including the development of advanced manufacturing techniques and process controls. Manufacturers of cell therapy products often encounter difficulties in production, particularly in scaling out and validating initial production and ensuring the absence of contamination. These problems include difficulties with production costs and yields, quality control, including stability of the product, quality assurance testing, operator error, shortages of qualified personnel, as well as compliance with strictly enforced federal, state and foreign regulations. Furthermore, if contaminants are discovered in our supply of product candidates or in the manufacturing facilities, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination. We cannot assure you that any stability or other issues relating to the manufacture of our product candidates will not occur in the future.

We may fail to manage the logistics of storing and shipping our product candidates. Storage failures and shipment delays and problems caused by us, our vendors or other factors not in our control, such as weather, could result in loss of usable product or prevent or delay the delivery of product candidates to patients.

We may also experience manufacturing difficulties due to resource constraints or as a result of labor disputes. If we were to encounter any of these difficulties, our ability to provide our product candidates to patients would be jeopardized.

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

We currently have no sales, marketing or distribution capabilities and as a company have no experience in marketing products. We intend to develop an in-house marketing organization and sales force, which will require significant capital expenditures, management resources and time. We will have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train and retain marketing and sales personnel.

If we are unable or decide not to establish internal sales, marketing and distribution capabilities, we will pursue collaborative arrangements regarding the sales and marketing of our products; however, there can be no assurance that we will be able to establish or maintain such collaborative arrangements, or if we are able to do so, that they will have effective sales forces. Any revenue we receive will depend upon the efforts of such third parties, which may not be successful. We may have little or no control over the marketing and sales efforts of such third parties and our revenue from product sales may be lower than if we had commercialized our product candidates ourselves. We also face competition in our search for third parties to assist us with the sales and marketing efforts of our product candidates.

There can be no assurance that we will be able to develop in-house sales and distribution capabilities or establish or maintain relationships with third-party collaborators to commercialize any product that receives regulatory approval in the United States or overseas.

A variety of risks associated with conducting research and clinical trials abroad and marketing our product candidates internationally could materially adversely affect our business.

The CALM trial is currently being conducted in the United States, the United Kingdom and France, while the PALL clinical trial is currently being conducted in the United Kingdom, Belgium and France, and we plan to globally develop our future product candidates. Accordingly, we expect that we will be subject to additional risks related to operating in foreign countries, including:

- differing regulatory requirements in foreign countries;
- unexpected changes in tariffs, trade barriers, price and exchange controls and other regulatory requirements;
- increased difficulties in managing the logistics and transportation of storing and shipping product candidates produced in the United States and shipping the product candidate to the patient abroad;

- import and export requirements and restrictions;
- 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 taxes, including withholding of payroll taxes;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- difficulties staffing and managing foreign operations;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- differing payor reimbursement regimes, governmental payors or patient self-pay systems, and price controls;
- potential liability under the Foreign Corrupt Practices Act of 1977 or comparable foreign regulations;
- challenges enforcing our contractual and intellectual property rights, especially in those foreign countries that do not respect and protect intellectual property rights to the same extent as the United States;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and
- business interruptions resulting from geo-political actions, including war and terrorism.

These and other risks associated with our international operations and our collaborations with Servier and Cellectis, each based in France, may materially adversely affect our ability to attain or maintain profitable operations.

We face significant competition from other biotechnology and pharmaceutical companies, and our operating results will suffer if we fail to compete effectively.

The biopharmaceutical industry, and the immuno-oncology industry specifically, is characterized by intense competition and rapid innovation. Our competitors may be able to develop other compounds or drugs that are able to achieve similar or better results. Our potential competitors include major multinational pharmaceutical companies, established biotechnology companies, specialty pharmaceutical companies and universities and other research institutions. Many of our competitors have substantially greater financial, technical and other resources, such as larger research and development staff and experienced marketing and manufacturing organizations and well-established sales forces. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large, established companies. Mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated in our competitors. Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these industries. Our competitors, either alone or with collaborative partners, may succeed in developing, acquiring or licensing on an exclusive basis drug or biologic products that are more effective, safer, more easily commercialized or less costly than our product candidates or may develop proprietary technologies or secure patent protection that we may need for the development of our technologies and products.

Specifically, engineered T cells face significant competition in both the CAR and TCR technology space from multiple companies. Even if we obtain regulatory approval of our product candidates, the availability and price of our competitors' products could limit the demand and the price we are able to charge for our product candidates. We may not be able to implement our business plan if the acceptance of our product candidates is inhibited by price competition or the reluctance of physicians to switch from existing methods of treatment to our product candidates, or if physicians switch to other new drug or biologic products or choose to reserve our product candidates for use in limited circumstances.

We are highly dependent on our key personnel, and if we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

Our ability to compete in the highly competitive biotechnology and pharmaceutical industries depends upon our ability to attract and retain highly qualified managerial, scientific and medical personnel. We are highly dependent on our management, scientific and medical personnel, including our Executive Chairman, our President and Chief Executive Officer, our Chief Technical Officer and our Chief Financial Officer. In addition, we are currently dependent on our TSA with Pfizer for personnel support. The loss of the services of any of our executive officers, other key employees, and other scientific and medical advisors, and our inability to find suitable replacements could result in delays in product development and harm our business.

We conduct substantially all of our operations at our facilities in South San Francisco. This region is headquarters to many other biopharmaceutical companies and many academic and research institutions. Competition for skilled personnel in our market is intense and may limit our ability to hire and retain highly qualified personnel on acceptable terms or at all.

To induce valuable employees to remain at our company, in addition to salary and cash incentives, we have provided stock options that vest over time. The value to employees of stock options that vest over time may be significantly affected by movements in our stock price that are beyond our control and may at any time be insufficient to counteract more lucrative offers from other companies. Despite our efforts to retain valuable employees, members of our management, scientific and development teams may terminate their employment with us on short notice. Although we have employment agreements with our key employees, these employment agreements provide for at-will employment, which means that any of our employees could leave our employment at any time, with or without notice. We do not maintain “key person” insurance policies on the lives of these individuals or the lives of any of our other employees. Our success also depends on our ability to continue to attract, retain and motivate highly skilled junior, mid-level and senior managers as well as junior, mid-level and senior scientific and medical personnel.

We have grown rapidly and will need to continue to grow the size of our organization, and we may experience difficulties in managing this growth.

As our development and commercialization plans and strategies develop, and as we continue to transition into operating as a public company, we have rapidly expanded our employee base and expect to continue to add managerial, operational, sales, research and development, marketing, financial and other personnel. Current and future growth imposes significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, maintaining and motivating additional employees;
- managing our internal development efforts effectively, including the clinical and FDA review process for our product candidates, while complying with our contractual obligations to contractors and other third parties; and
- improving our operational, financial and management controls, reporting systems and procedures.

Our future financial performance and our ability to commercialize our product candidates will depend, in part, on our ability to effectively manage our growth, and our management may also have to divert a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time to managing these growth activities.

We currently rely, and for the foreseeable future will continue to rely, in substantial part on certain independent organizations, advisors and consultants, including Pfizer through the TSA, which expires after a certain period of time, to provide certain services, including certain research and development as well as general and administrative support. There can be no assurance that the services of independent organizations, advisors and consultants will continue to be available to us on a timely basis when needed, or that we can find qualified

replacements. In addition, if we are unable to effectively manage our outsourced activities or if the quality or accuracy of the services provided by consultants is compromised for any reason, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain regulatory approval of our product candidates or otherwise advance our business. There can be no assurance that we will be able to manage our existing consultants or find other competent outside contractors and consultants on economically reasonable terms, or at all.

If we are not able to effectively expand our organization by hiring new employees and expanding our groups of consultants and contractors, we may not be able to successfully implement the tasks necessary to further develop and commercialize our product candidates and, accordingly, may not achieve our research, development and commercialization goals.

We may form or seek strategic alliances or enter into additional licensing arrangements in the future, and we may not realize the benefits of such alliances or licensing arrangements.

We may form or seek strategic alliances, create joint ventures or collaborations or enter into additional licensing arrangements with third parties that we believe will complement or augment our development and commercialization efforts with respect to our product candidates and any future product candidates that we may develop. Any of these relationships may require us to incur non-recurring and other charges, increase our near and long-term expenditures, issue securities that dilute our existing stockholders or disrupt our management and business. In addition, we face significant competition in seeking appropriate strategic partners and the negotiation process is time-consuming and complex. Moreover, we may not be successful in our efforts to establish a strategic partnership or other alternative arrangements for our product candidates because they may be deemed to be at too early of a stage of development for collaborative effort and third parties may not view our product candidates as having the requisite potential to demonstrate safety and efficacy. Any delays in entering into new strategic partnership agreements related to our product candidates could delay the development and commercialization of our product candidates in certain geographies for certain indications, which would harm our business prospects, financial condition and results of operations.

If we license products or businesses, we may not be able to realize the benefit of such transactions if we are unable to successfully integrate them with our existing operations and company culture. For instance, our Exclusive License and Collaboration Agreement with Servier requires significant research and development commitments that may not result in the development and commercialization of product candidates, including UCART19 and ALLO-501. We cannot be certain that, following a strategic transaction or license, we will achieve the results, revenue or specific net income that justifies such transaction.

We may not realize the benefits of acquired assets or other strategic transactions.

In April 2018, we entered into an Asset Contribution Agreement with Pfizer pursuant to which we acquired certain assets and assumed certain liabilities from Pfizer, including the Collaboration and License Agreement with Cellectis and the Exclusive License and Collaboration Agreement with Servier and other intellectual property for the development and administration of CAR T cells for the treatment of cancer. We also agreed to offer employment to certain Pfizer employees on terms no less favorable than the terms such employees enjoyed while being employed by Pfizer. We also entered into a TSA with Pfizer pursuant to which Pfizer provides us with certain services, including the services of their personnel, with respect to the assets that we purchased from Pfizer. Under the TSA, Pfizer also provides us with certain facilities and facility management services.

We actively evaluate various strategic transactions on an ongoing basis. We may acquire other businesses, products or technologies as well as pursue joint ventures or investments in complementary businesses. The success of our strategic transactions, including our acquisition of CAR T cell assets from Pfizer and licenses with Cellectis and Servier, and any future strategic transactions depends on the risks and uncertainties involved including:

- unanticipated liabilities related to acquired companies or joint ventures;

- difficulties integrating acquired personnel, technologies and operations into our existing business;
- retention of key employees;
- diversion of management time and focus from operating our business to management of strategic alliances or joint ventures or acquisition integration challenges;
- increases in our expenses and reductions in our cash available for operations and other uses;
- disruption in our relationships with collaborators or suppliers as a result of such a transaction; and
- possible write-offs or impairment charges relating to acquired businesses or joint ventures.

If any of these risks or uncertainties occur, we may not realize the anticipated benefit of any acquisition or strategic transaction. Additionally, foreign acquisitions and joint ventures are subject to additional risks, including those related to integration of operations across different cultures and languages, currency risks, potentially adverse tax consequences of overseas operations and the particular economic, political and regulatory risks associated with specific countries.

Future acquisitions or dispositions could result in potentially dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities or amortization expenses or write-offs of goodwill, any of which could harm our financial condition.

We will need substantial additional financing to develop our products and implement our operating plans. If we fail to obtain additional financing, we may be unable to complete the development and commercialization of our product candidates.

We expect to spend a substantial amount of capital in the clinical development of our product candidates, including the planned clinical trials for UCART19, ALLO-501 and ALLO-715. We will need substantial additional financing to develop our products and implement our operating plans. In particular, we will require substantial additional financing to enable commercial production of our products and initiate and complete registration trials for multiple products. Further, if approved, we will require significant additional amounts in order to launch and commercialize our product candidates.

We estimate that our net proceeds from this offering will be approximately $297.8 million, based on the initial public offering price of $18.00 per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. We believe that such proceeds together with our existing cash, cash equivalents and marketable securities will be sufficient to fund our operations for at least the next 36 months. However, changing circumstances may cause us to consume capital significantly faster than we currently anticipate, and we may need to spend more money than currently expected because of circumstances beyond our control. We may require additional capital for the further development and commercialization of our product candidates, including funding our internal manufacturing capabilities and may need to raise additional funds sooner if we choose to expand more rapidly than we presently anticipate.

We cannot be certain that additional funding will be available on acceptable terms, or at all. We have no committed source of additional capital and if we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue the development or commercialization of our product candidates or other research and development initiatives. Our license agreements may also be terminated if we are unable to meet the payment obligations under the agreements. We could be required to seek collaborators for our product candidates at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available or relinquish or license on unfavorable terms our rights to our product candidates in markets where we otherwise would seek to pursue development or commercialization ourselves.

Any of the above events could significantly harm our business, prospects, financial condition and results of operations and cause the price of our common stock to decline.

Our internal computer systems, or those used by our CROs or other contractors or consultants, may fail or suffer security breaches.

Despite the implementation of security measures, our internal computer systems and the systems of our CROs, contractors and consultants are vulnerable to damage from computer viruses and unauthorized access. While we have not experienced any such material system failure or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our development programs and our business operations. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development and commercialization of our product candidates could be delayed.

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

Our operations, and those of our CMO, CROs and other contractors and consultants, could be subject to earthquakes, power shortages, telecommunications failures, water shortages, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics and other natural or man-made disasters or business interruptions, for which we are predominantly self-insured. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses.

Our ability to manufacture our product candidates could be disrupted if our operations or those of our suppliers are affected by a man-made or natural disaster or other business interruption. Our corporate headquarters are located in California near major earthquake faults and fire zones. The ultimate impact on us, our significant suppliers and our general infrastructure of being located near major earthquake faults and fire zones and being consolidated in certain geographical areas is unknown, but our operations and financial condition could suffer in the event of a major earthquake, fire or other natural disaster.

Our relationships with customers, physicians, and third-party payors are subject, directly or indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, health information privacy and security laws, and other healthcare laws and regulations. If we or our employees, independent contractors, consultants, commercial partners and vendors violate these laws, we could face substantial penalties.

These laws may impact, among other things, our clinical research program, as well as our proposed and future sales, marketing and education programs. In particular, the promotion, sales and marketing of healthcare items and services is subject to extensive laws and regulations designed to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive and other business arrangements. We may also be subject to federal, state and foreign laws governing the privacy and security of identifiable patient information. The U.S. healthcare laws and regulations that may affect our ability to operate include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits, among other things, any person or entity from knowingly and willfully, offering, paying, soliciting or receiving any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for, the purchasing, leasing, ordering or arranging for the purchase, lease, or order of any item or service reimbursable under Medicare, Medicaid or other federal healthcare programs. The term “remuneration” has been broadly

interpreted to include anything of value. Although there are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution, the exceptions and safe harbors are drawn narrowly. Practices that may be alleged to be intended to induce prescribing, purchases or recommendations, include any payments of more than fair market value, and may be subject to scrutiny if they do not qualify for an exception or safe harbor. In addition, a person or entity does not need to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation. 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 False Claims Act and the civil monetary penalties statute;

- federal civil and criminal false claims laws and civil monetary penalty laws, including the federal civil False Claims Act, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment or approval from Medicare, Medicaid, or other federal government programs that are false or fraudulent or knowingly making a false statement to improperly avoid, decrease or conceal an obligation to pay money to the federal government, including federal healthcare programs;
- the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), which created new federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying, concealing or covering up by any trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statements 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;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act (HITECH) and their respective implementing regulations, which impose requirements on certain covered healthcare providers, health plans, and healthcare clearinghouses as well as their respective business associates that perform services for them that involve the use, or disclosure of, individually identifiable health information, relating to the privacy, security and transmission of individually identifiable health information;
- the federal Physician Payments Sunshine Act, which requires certain manufacturers of drugs, devices, biologicals 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 United States Department of Health and Human Services' Centers for Medicare & Medicaid Services (CMS) information related to payments or other transfers of value made to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members; and
- federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers.

Additionally, we may be subject to state and foreign equivalents of each of the healthcare laws described above, among others, some of which may be broader in scope. For example, we may be subject to the following: state anti-kickback and false claims laws that may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third party payors, including private insurers, or that apply regardless of payor; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government; state laws that require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; state and

local laws requiring the registration of pharmaceutical sales and medical representatives; and state and foreign laws governing the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Because of the breadth of these laws and the narrowness of the statutory exceptions and regulatory safe harbors available, it is possible that some of our business activities, or our arrangements with physicians, some of who receive stock options as compensation, could be subject to challenge under one or more of such laws. If we or our employees, independent contractors, consultants, commercial partners and vendors violate these laws, we may be subject to investigations, enforcement actions and/or significant penalties. We have adopted a code of business conduct and ethics, but it is not always possible to identify and deter employee misconduct or business noncompliance, and the precautions we take to detect and prevent inappropriate conduct 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. Efforts to ensure that our business arrangements will comply with applicable healthcare laws may involve substantial costs. It is possible that governmental and enforcement authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law interpreting applicable fraud and abuse or other healthcare laws and regulations. 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, including the imposition of civil, criminal and administrative penalties, damages, disgorgement, monetary fines, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings, additional reporting requirements and/or 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. In addition, the approval and commercialization of any of our product candidates outside the United States will also likely subject us to foreign equivalents of the healthcare laws mentioned above, among other foreign laws.

European data collection is governed by restrictive regulations governing the use, processing, and cross-border transfer of personal information.

The collection and use of personal data in the European Union (EU) are governed by the General Data Protection Regulation (GDPR). The GDPR imposes stringent requirements for controllers and processors of personal data, including, for example, more robust disclosures to individuals and a strengthened individual data rights regime, shortened timelines for data breach notifications, limitations on retention of information, increased requirements pertaining to special categories of data, such as health data, and additional obligations when we contract with third-party processors in connection with the processing of the personal data. The GDPR also imposes strict rules on the transfer of personal data out of the European Union to the United States and other third countries. In addition, the GDPR provides that EU member states may make their own further laws and regulations limiting the processing of personal data, including genetic, biometric or health data.

The GDPR applies extraterritorially, and we may be subject to the GDPR because of our data processing activities that involve the personal data of individuals located in the European Union, such as in connection with our EU clinical trials. Failure to comply with the requirements of the GDPR and the applicable national data protection laws of the EU member states may result in fines of up to €20,000,000 or up to 4% of the total worldwide annual turnover of the preceding financial year, whichever is higher, and other administrative penalties. GDPR regulations may impose additional responsibility and liability in relation to the personal data that we process and we may be required to put in place additional mechanisms to ensure compliance with the new data protection rules. This may be onerous and may interrupt or delay our development activities, and adversely affect our business, financial condition, results of operations and prospects.

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

We face an inherent risk of product liability as a result of the clinical testing of our product candidates and will face an even greater risk if we commercialize any products. For example, we may be sued if our product candidates cause or are perceived to cause injury or are found to be otherwise unsuitable during clinical 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, negligence, strict liability or a breach of warranties. 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 commercialization of our product candidates. Even 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 product candidates;
- injury to our reputation;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue;
- exhaustion of any available insurance and our capital resources;
- the inability to commercialize any product candidate; and
- a decline in our share price.

Our inability to obtain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of products we develop, alone or with corporate collaborators. Our insurance policies may also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. Assuming we obtained clinical trial insurance for our clinical trials, we may have to pay 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. Even if our agreements with any future corporate collaborators entitle us to indemnification against losses, such indemnification may not be available or adequate should any claim arise.

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

The global credit and financial markets have experienced extreme volatility and disruptions in the past several years, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. There can be no assurance that further 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.

Our ability to utilize our net operating loss carryforwards and certain other tax attributes may be limited.

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an "ownership change" (generally defined as a greater than 50 percentage point change (by value) in the equity ownership of certain stockholders over a rolling three-year period), the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income and taxes may be limited. As a result of our most recent private placements and other transactions that have occurred in 2018, we may have experienced, and, upon completion of this offering, may experience, an "ownership change." We may also experience ownership changes in the future as a result of subsequent shifts in our stock ownership. As of June 30, 2018, we had U.S. net operating loss carryforwards of approximately $21.4 million and federal and state research and development credits of $0.3 million and $0.3 million, respectively, which could be limited if we experience an "ownership change." We anticipate incurring significant additional net losses for the foreseeable future, and our ability to utilize net operating loss carryforwards associated with any such losses to offset future taxable income may be limited to the extent we incur future ownership changes.

Risks Related to Our Reliance on Third Parties

We rely and will continue to rely on third parties, including Servier, to conduct our clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval of or commercialize our product candidates.

We depend and will continue to depend upon independent investigators and collaborators, such as universities, medical institutions, CROs and strategic partners to conduct our preclinical and clinical trials under agreements with us. In addition, we depend on our collaborator, Servier, to sponsor and lead the conduct of the CALM and PALL clinical trials.

We negotiate budgets and contracts with CROs and study sites, which may result in delays to our development timelines and increased costs. We will rely heavily on these third parties over the course of our clinical trials, and we control only certain aspects of their activities. Nevertheless, we are responsible for ensuring that each of our studies is conducted in accordance with applicable protocol, legal, regulatory and scientific standards, and our reliance on third parties does not relieve us of our regulatory responsibilities. We and these third parties are required to comply with good clinical practices (GCPs), which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for 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 these third parties fail to comply with applicable GCP regulations, 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. We cannot assure you that, upon inspection, such regulatory authorities will determine that any of our clinical trials comply with the GCP regulations. In addition, our clinical trials must be conducted with biologic product produced under cGMPs and will require a large number of test patients. Our failure or any failure by these third parties to comply with these regulations or to recruit a sufficient number of patients may require us to repeat clinical trials, which would delay the regulatory approval process. Moreover, our business may be implicated if any of these third parties violates federal or state fraud and abuse or false claims laws and regulations or healthcare privacy and security laws.

Any third parties conducting our clinical trials are and will not be our employees and, except for remedies available to us under our agreements with such third parties, we cannot control whether or not they devote sufficient time and resources to our ongoing preclinical, clinical and nonclinical programs. These third parties

may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical studies or other drug development activities, which could affect their performance on our behalf. If these third parties do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to complete development of, obtain regulatory approval of or successfully commercialize our product candidates. As a result, our financial results and the commercial prospects for our product candidates would be harmed, our costs could increase and our ability to generate revenue could be delayed.

If any of our relationships with trial sites, or any CRO that we may use in the future, terminates, we may not be able to enter into arrangements with alternative trial sites or CROs or do so on commercially reasonable terms. Switching or adding third parties to conduct our clinical trials involves substantial cost and requires extensive management time and focus. In addition, there is a natural transition period when a new third party commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines.

We may rely on third parties to manufacture our clinical product supplies, and we may have to rely on third parties to produce and process our product candidates, if approved.

Servier is responsible for UCART19 manufacturing and is working with a CMO in Europe to provide clinical supply for the CALM and PALL clinical trials. ALLO-501 has the same molecular design as UCART19, but is produced by a different CMO using a different manufacturing process. ALLO-501 and ALLO-715 will be manufactured in the United States, at least initially, by a CMO, and we will manage all other aspects of the supply, including planning, CMO oversight, disposition and distribution logistics.

Although we expect to secure our own clinical manufacturing facility, we must currently rely on outside vendors to manufacture supplies and process our product candidates. We have not yet caused our product candidates to be manufactured or processed on a commercial scale and may not be able to achieve manufacturing and processing and may be unable to create an inventory of mass-produced, off-the-shelf product to satisfy demands for any of our product candidates.

We do not yet have sufficient information to reliably estimate the cost of the commercial manufacturing and processing of our product candidates, and the actual cost to manufacture and process our product candidates could materially and adversely affect the commercial viability of our product candidates. As a result, we may never be able to develop a commercially viable product.

In addition, our anticipated reliance on a limited number of third-party manufacturers exposes us to the following risks:

- We may be unable to identify manufacturers on acceptable terms or at all because the number of potential manufacturers is limited and the FDA may have questions regarding any replacement contractor. This may require new testing and regulatory interactions. In addition, a new manufacturer would have to be educated in, or develop substantially equivalent processes for, production of our products after receipt of FDA questions, if any.
- Our third-party manufacturers might be unable to timely formulate and manufacture our product or produce the quantity and quality required to meet our clinical and commercial needs, if any.
- Contract manufacturers may not be able to execute our manufacturing procedures appropriately.
- Our future contract manufacturers may not perform as agreed or may not remain in the contract manufacturing business for the time required to supply our clinical trials or to successfully produce, store and distribute our products.

- Manufacturers are subject to ongoing periodic unannounced inspection by the FDA, the Drug Enforcement Administration and corresponding state agencies to ensure strict compliance with cGMP and other government regulations and corresponding foreign standards. We do not have control over third-party manufacturers' compliance with these regulations and standards.
- We may not own, or may have to share, the intellectual property rights to any improvements made by our third-party manufacturers in the manufacturing process for our products.
- Our third-party manufacturers could breach or terminate their agreement with us.

Our contract manufacturers would also be subject to the same risks we face in developing our own manufacturing capabilities, as described above. Each of these risks could delay our clinical trials, the approval, if any of our product candidates by the FDA or the commercialization of our product candidates or result in higher costs or deprive us of potential product revenue. In addition, we will rely on third parties to perform release tests on our product candidates prior to delivery to patients. If these tests are not appropriately done and test data are not reliable, patients could be put at risk of serious harm.

Cell-based therapies rely on the availability of specialty raw materials, which may not be available to us on acceptable terms or at all.

Our product candidates require many specialty raw materials, including viral vectors that deliver the CAR sequence and electroporation technology that we currently obtain through Cellectis, some of which are manufactured by small companies with limited resources and experience to support a commercial product, and the suppliers may not be able to deliver raw materials to our specifications. In addition, those suppliers normally support blood-based hospital businesses and generally do not have the capacity to support commercial products manufactured under cGMP by biopharmaceutical firms. The suppliers may be ill-equipped to support our needs, especially in non-routine circumstances like an FDA inspection or medical crisis, such as widespread contamination. We also do not have contracts with many of these suppliers, and we may not be able to contract with them on acceptable terms or at all. Accordingly, we may experience delays in receiving key raw materials to support clinical or commercial manufacturing.

In addition, some raw materials are currently available from a single supplier, or a small number of suppliers. We cannot be sure that these suppliers will remain in business or that they will not be purchased by one of our competitors or another company that is not interested in continuing to produce these materials for our intended purpose. In addition, the lead time needed to establish a relationship with a new supplier can be lengthy, and we may experience delays in meeting demand in the event we must switch to a new supplier. The time and effort to qualify a new supplier could result in additional costs, diversion of resources or reduced manufacturing yields, any of which would negatively impact our operating results. Further, we may be unable to enter into agreements with a new supplier on commercially reasonable terms, which could have a material adverse impact on our business.

If we or our third-party suppliers use hazardous, non-hazardous, biological or other materials in a manner that causes injury or violates applicable law, we may be liable for damages.

Our research and development activities involve the controlled use of potentially hazardous substances, including chemical and biological materials. We and our suppliers are subject to federal, state and local laws and regulations in the United States governing the use, manufacture, storage, handling and disposal of medical and hazardous materials. Although we believe that we and our suppliers' procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, we and our suppliers cannot completely eliminate the risk of contamination or injury resulting from medical or hazardous materials. As a result of any such contamination or injury, we may incur liability or local, city, state or federal authorities may curtail the use of these materials and interrupt our business operations. In the event of an accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. We do not have any insurance for

liabilities arising from medical or hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may impair our research, development and production efforts, which could harm our business, prospects, financial condition or results of operations.

Risks Related to Government Regulation

The FDA regulatory approval process is lengthy and time-consuming, and we may experience significant delays in the clinical development and regulatory approval of our product candidates.

The research, testing, manufacturing, labeling, approval, selling, import, export, marketing, and distribution of drug products, including biologics, are subject to extensive regulation by the FDA and other regulatory authorities in the United States. We are not permitted to market any biological drug product in the United States until we receive approval of a BLA from the FDA. We have not previously submitted a BLA to the FDA, or similar approval filings to comparable foreign authorities. A BLA must include extensive preclinical and clinical data and supporting information to establish the product candidate's safety and effectiveness for each desired indication. The BLA must also include significant information regarding the chemistry, manufacturing and controls for the product, including with respect to chain of identity and chain of custody of the product.

We expect the novel nature of our product candidates to create further challenges in obtaining regulatory approval. For example, the FDA has limited experience with commercial development of allogeneic T cell therapies for cancer. We may also request regulatory approval of future CAR-based product candidates by target, regardless of cancer type or origin, which the FDA may have difficulty accepting if our clinical trials only involved cancers of certain origins. The FDA may also require a panel of experts, referred to as an Advisory Committee, to deliberate on the adequacy of the safety and efficacy data to support licensure. The opinion of the Advisory Committee, although not binding, may have a significant impact on our ability to obtain licensure of the product candidates based on the completed clinical trials, as the FDA often adheres to the Advisory Committee's recommendations. Accordingly, the regulatory approval pathway for our product candidates may be uncertain, complex, expensive and lengthy, and approval may not be obtained.

We may also experience delays in completing planned clinical trials for a variety of reasons, including delays related to:

- obtaining regulatory authorization to begin a trial, if applicable;
- the availability of financial resources to commence and complete the planned trials;
- reaching agreement on acceptable terms with prospective 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;
- obtaining approval at each clinical trial site by an independent IRB;
- recruiting suitable patients to participate in a trial;
- having patients complete a trial, including having patients enrolled in clinical trials dropping out of the trial before the product candidate is manufactured and returned to the site, or return for post-treatment follow-up;
- clinical trial sites deviating from trial protocol or dropping out of a trial;
- addressing any patient safety concerns that arise during the course of a trial;
- adding new clinical trial sites; or
- manufacturing sufficient quantities of qualified materials under cGMPs and applying them on a patient by patient basis for use in clinical trials.

We could also encounter delays if physicians encounter unresolved ethical issues associated with enrolling patients in clinical trials of our product candidates in lieu of prescribing existing treatments that have established safety and efficacy profiles. Further, a clinical trial may be suspended or terminated by us, the IRBs for the institutions in which such trials are being conducted or by the FDA or other regulatory authorities 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 other 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 product candidate, changes in governmental regulations or administrative actions, lack of adequate funding to continue the clinical trial, or based on a recommendation by the Data Safety Monitoring Committee. The FDA's review of our data of our ongoing clinical trials of UCART19 may, depending on the data, also result in the delay, suspension or termination of one or more clinical trials of UCART19, which would also delay or prevent the initiation of our other planned clinical trials. If we experience termination of, or delays in the completion of, any clinical trial of our product candidates, the commercial prospects for our product candidates will be harmed, and our ability to generate product revenue will be delayed. In addition, any delays in completing our clinical trials will increase our costs, slow down our product development and approval process and jeopardize our ability to commence product sales and generate revenue.

Many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may ultimately lead to the denial of regulatory approval of our product candidates.

We expect the product candidates we develop will be regulated as biological products, or biologics, and therefore they may be subject to competition sooner than anticipated.

The Biologics Price Competition and Innovation Act of 2009 (BPCIA) was enacted as part of the Affordable Care Act to establish an abbreviated pathway for the approval of biosimilar and interchangeable biological products. The regulatory pathway establishes legal authority for the FDA to review and approve biosimilar biologics, including the possible designation of a biosimilar as "interchangeable" based on its similarity to an approved biologic. Under the BPCIA, an application for a biosimilar product cannot be approved by the FDA until 12 years after the reference product was approved under a BLA. The law is complex and is still being interpreted and implemented by the FDA. As a result, its ultimate impact, implementation, and meaning are subject to uncertainty. While it is uncertain when such processes intended to implement the BPCIA may be fully adopted by the FDA, any such processes could have a material adverse effect on the future commercial prospects for our biological products.

We believe that any of the product candidates we develop that is approved in the United States 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 the subject product candidates to be reference products for competing products, potentially creating the opportunity for generic competition sooner than anticipated. Moreover, the extent to which a biosimilar, once approved, will be substituted for any one of the reference products in a way that is similar to traditional generic substitution for non-biological products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing.

The regulatory landscape that will govern our product candidates is uncertain; regulations relating to more established gene therapy and cell therapy products are still developing, and changes in regulatory requirements could result in delays or discontinuation of development of our product candidates or unexpected costs in obtaining regulatory approval.

Because we are developing novel CAR T cell immunotherapy product candidates that are unique biological entities, the regulatory requirements that we will be subject to are not entirely clear. Even with respect to more established products that fit into the categories of gene therapies or cell therapies, the regulatory landscape is still developing. For example, regulatory requirements governing gene therapy products and cell therapy products have changed frequently and may continue to change in the future. Moreover, there is substantial, and sometimes

uncoordinated, overlap in those responsible for regulation of existing gene therapy products and cell therapy products. For example, in the United States, the FDA has established the Office of Tissues and Advanced Therapies (OTAT), formerly known as the Office of Cellular, Tissue and Gene Therapies (OCTGT), within its Center for Biologics Evaluation and Research (CBER) to consolidate the review of gene therapy and related products, and the Cellular, Tissue and Gene Therapies Advisory Committee to advise CBER on its review. Gene therapy clinical trials are also subject to review and oversight by an institutional biosafety committee (IBC), a local institutional committee that reviews and oversees basic and clinical research conducted at the institution participating in the clinical trial. Although the FDA decides whether individual gene therapy protocols may proceed, review process and determinations of other reviewing bodies can impede or delay the initiation of a clinical study, even if the FDA has reviewed the study and approved its initiation. Conversely, the FDA can place an IND application on clinical hold even if such other entities have provided a favorable review. Furthermore, each clinical trial must be reviewed and approved by an independent IRB at or servicing each institution at which a clinical trial will be conducted. In addition, adverse developments in clinical trials of gene therapy products conducted by others may cause the FDA or other regulatory bodies to change the requirements for approval of any of our product candidates.

Complex regulatory environments exist in other jurisdictions in which we might consider seeking regulatory approvals for our product candidates, further complicating the regulatory landscape. For example, in the EU a special committee called the Committee for Advanced Therapies (CAT) was established within the EMA in accordance with Regulation (EC) No 1394/2007 on advanced-therapy medicinal products (ATMPs) to assess the quality, safety and efficacy of ATMPs, and to follow scientific developments in the field. ATMPs include gene therapy products as well as somatic cell therapy products and tissue engineered products. In this regard, on May 28, 2014, the EMA issued a recommendation that UCART19 be considered a gene therapy product under Regulation (EC) No 1394/2007 on ATMPs. We believe this recommendation is likely to be applicable to our UCART19 product candidate; however, this recommendation is not definitive until UCART19 obtains regulatory approval for commercialization.

These various regulatory review committees and advisory groups and new or revised guidelines that they promulgate from time to time may lengthen the regulatory review process, require us to perform additional studies, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of our product candidates or lead to significant post-approval limitations or restrictions. Because the regulatory landscape for our CAR T cell immunotherapy product candidates is new, we may face even more cumbersome and complex regulations than those emerging for gene therapy products and cell therapy products. Furthermore, even if our product candidates obtain required regulatory approvals, such approvals may later be withdrawn as a result of changes in regulations or the interpretation of regulations by applicable regulatory agencies.

Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring a potential product to market could decrease our ability to generate sufficient product revenue to maintain our business.

The FDA may disagree with our regulatory plan and we may fail to obtain regulatory approval of our product candidates.

We plan to support the completion of the CALM and PALL clinical trials, which we expect to occur in the second half of 2019, and, assuming positive data, we expect UCART19 to be advanced to potential registrational trials, CALM II and PALL II. The general approach for FDA approval of a new biologic or drug is for the sponsor to provide dispositive data from two well-controlled, Phase 3 clinical studies of the relevant biologic or drug in the relevant patient population. Phase 3 clinical studies typically involve hundreds of patients, have significant costs and take years to complete. We expect CALM II will be designed to evaluate the efficacy of UCART19 in an open-label, international, non-comparative, two-stage, pivotal, multicenter, single-arm clinical trial in adult patients with R/R ALL who have exhausted available treatment options, and PALL II will be designed as an open-label, international, non-comparative, two-stage, pivotal clinical trial of pediatric patients with R/R ALL aged from three

months up to less than 18 years. If the results are sufficiently compelling, we intend to discuss with the FDA submission of a BLA for UCART19. However, we do not have any agreement or guidance from the FDA that our regulatory development plans will be sufficient for submission of a BLA for UCART19. For example, the FDA may require that we conduct a comparative trial against an approved therapy including potentially an approved autologous T cell therapy, which would significantly delay our development timelines and require substantially more resources. In addition, the FDA may only allow us to evaluate patient's that have failed or who are ineligible for autologous therapy, which are extremely difficult patients to treat and patients with advanced and aggressive cancer, and our product candidates may fail to improve outcomes for such patients.

The FDA may grant accelerated approval for our product candidates and, as a condition for accelerated approval, the FDA may require a sponsor of a drug or biologic receiving accelerated approval to perform post-marketing studies to verify and describe the predicted effect on irreversible morbidity or mortality or other clinical endpoint, and the drug or biologic may be subject to withdrawal procedures by the FDA that are more accelerated than those available for regular approvals. We believe our accelerated approval strategy is warranted given the limited alternatives for patients with R/R ALL, but the FDA may ultimately require a Phase 3 clinical trial prior to approval, particularly since our product candidates represent a novel treatment. In addition, the standard of care may change with the approval of new products in the same indications that we are studying. This may result in the FDA or other regulatory agencies requesting additional studies to show that our product candidate is superior to the new products.

ALLO-647 will also require regulatory review prior to its use in our clinical trials and the FDA may not accept the use of ALLO-647 in our clinical trials in a timely manner or at all. For instance, the FDA may not accept comparability data to alemtuzumab. In addition, we cannot be certain we will be able to successfully obtain regulatory approval of ALLO-647 in a timely manner or at all. Any delays to ALLO-647 approval could delay any approval or commercialization of UCART19 and our other allogeneic T cell product candidates.

Our clinical trial results may also not support approval. In addition, our product candidates could fail to receive regulatory approval for many reasons, including the following:

- the FDA or comparable foreign regulatory authorities may disagree with the design or implementation of our clinical trials;
- we may be unable to demonstrate to the satisfaction of the FDA or comparable foreign regulatory authorities that our product candidates are safe and effective for any of their proposed indications;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval, including due to the heterogeneity of patient populations;
- we may be unable to demonstrate that our product candidates' clinical and other benefits outweigh their safety risks;
- the FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from preclinical studies or clinical trials;
- the data collected from clinical trials of our product candidates may not be sufficient to the satisfaction of the FDA or comparable foreign regulatory authorities to support the submission of a BLA or other comparable submission in foreign jurisdictions or to obtain regulatory approval in the United States or elsewhere;
- the FDA or comparable foreign regulatory authorities will inspect our commercial manufacturing facility and may not approve our facility; and
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

We may seek orphan drug designation for some or all of our product candidates across various indications, but we may be unable to obtain such designations or to maintain the benefits associated with orphan drug designation, including market exclusivity, which may cause our revenue, if any, to be reduced.

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, defined as a disease or condition with a patient population of fewer than 200,000 in the United States, or a patient population greater than 200,000 in the United States when there is no reasonable expectation that the cost of developing and making available the drug or biologic in the United States will be recovered from sales in the United States for that drug or biologic. In order to obtain orphan drug designation, the request must be made before submitting a BLA. In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages, and user-fee waivers. After the FDA grants orphan drug designation, the generic identity of the drug and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process.

If a product that has orphan drug designation subsequently receives the first FDA approval of that particular product for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications, including a BLA, to market the same biologic (meaning, a product with the same principal molecular structural features) 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 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 was designated. As a result, even if one of our product candidates receives orphan exclusivity, the FDA can still approve other biologics that do not have the same principal molecular structural features for use in treating the same indication or disease or the same biologic for a different indication or disease during the exclusivity period. Furthermore, the FDA can waive orphan exclusivity if we are unable to manufacture sufficient supply of our product or if a subsequent applicant demonstrates clinical superiority over our product.

We may seek orphan drug designation for some or all of our product candidates in specific orphan indications in which there is a medically plausible basis for the use of these products. Even if we obtain orphan drug designation, exclusive marketing rights in the United States may be limited if we seek approval for an indication broader than the orphan designated indication and may be lost if the FDA later determines that the request for designation was materially defective or if we are unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition, or if a subsequent applicant demonstrates clinical superiority over our products, if approved. In addition, although we may seek orphan drug designation for other product candidates, we may never receive such designations.

A Breakthrough Therapy Designation by the FDA, even if granted for any of our product candidates, may not lead to a faster development or regulatory review or approval process and it does not increase the likelihood that our product candidates will receive marketing approval.

We may seek a Breakthrough Therapy Designation for our product candidates if the clinical data support such a designation for one or more product candidates. A breakthrough therapy is defined as a drug or biologic that is intended, alone or in combination with one or more other drugs or biologics, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the drug, or biologic in our case, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. For product candidates that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor of the trial can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens. Biologics designated as breakthrough therapies by the FDA may also be eligible for priority review.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe one of our product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. In any event, the receipt of a Breakthrough Therapy Designation for a product candidate may not result in a faster development process, review or approval compared to drugs considered for approval under non-expedited the FDA review procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of our product candidates qualify as breakthrough therapies, 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.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not mean that we will be successful in obtaining regulatory approval of our product candidates in other jurisdictions.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory approval in any other jurisdiction, while a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. For example, even if the FDA grants marketing approval of a product candidate, comparable regulatory authorities in foreign jurisdictions must also approve the manufacturing, marketing and promotion of the product candidate in those countries. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from, and greater than, those in the United States, including additional preclinical studies or clinical trials as clinical studies conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions. In many jurisdictions outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we intend to charge for our products is also subject to approval.

We may also submit marketing applications in other countries. Regulatory authorities in jurisdictions outside of the United States have requirements for approval of product candidates with which we must comply prior to marketing in those jurisdictions. Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our products in certain countries. If we fail to comply with the regulatory requirements in international markets and/or receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of our product candidates will be harmed.

Even if we receive regulatory approval of our product candidates, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our product candidates.

Any regulatory approvals that we receive for our product candidates will require surveillance to monitor the safety and efficacy of the product candidate. The FDA may also require a risk evaluation and mitigation strategy, or REMS, in order to approve our product candidates, which could entail 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 product candidates 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 cGMPs and cGCPs for any clinical trials that we conduct post-approval. As such, we and our contract manufacturers will be subject to continual review and inspections to assess compliance with cGMP and adherence to commitments made in any BLA, other marketing application and previous responses to inspectional observations. Accordingly, we and others with whom we work must continue to expend time, money and effort in all areas of regulatory compliance, including manufacturing, production and quality control. In addition, the FDA could require us to conduct another study to obtain additional safety or biomarker information. Further, we

will be required to comply with FDA promotion and advertising rules, which include, among others, standards for direct-to-consumer advertising, restrictions on promoting products for uses or in patient populations that are not described in the product's approved uses (known as "off-label use"), limitations on industry-sponsored scientific and educational activities and requirements for promotional activities involving the internet and social media. Later discovery of previously unknown problems with our product candidates, including adverse events of unanticipated severity or frequency, or with our third-party suppliers or 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 our product candidates, withdrawal of the product from the market or voluntary or mandatory product recalls;
- fines, warning 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 license approvals;
- product seizure or detention, or refusal to permit the import or export of our product candidates; and
- injunctions or the imposition of civil or criminal penalties.

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 cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative or executive action, either in the United States or abroad. For example, certain policies of the current U.S. President's administration may impact our business and industry. Namely, the current U.S. President's administration has taken several executive actions, including the issuance of a number of Executive Orders, that could impose significant burdens on, or otherwise materially delay, FDA's ability to engage in routine oversight activities such as implementing statutes through rulemaking, issuance of guidance, and review and approval of marketing applications. It is difficult to predict how these orders will be implemented, and the extent to which they will impact the FDA's ability to exercise its regulatory authority. If these executive actions impose restrictions on FDA's ability to engage in oversight and implementation activities in the normal course, our business may be negatively impacted. 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 lose any marketing approval that we may have obtained and we may not achieve or sustain profitability.

Negative public opinion and increased regulatory scrutiny of genetic research and therapies involving gene editing may damage public perception of our product candidates or adversely affect our ability to conduct our business or obtain regulatory approvals for our product candidates.

The gene-editing technologies that we use are novel. Public perception may be influenced by claims that gene editing is unsafe, and products incorporating gene editing may not gain the acceptance of the public or the medical community. In particular, our success will depend upon physicians specializing in our targeted diseases prescribing our product candidates as treatments in lieu of, or in addition to, existing, more familiar, treatments for which greater clinical data may be available. Any increase in negative perceptions of gene editing may result in fewer physicians prescribing our treatments or may reduce the willingness of patients to utilize our treatments or participate in clinical trials for our product candidates. Increased negative public opinion or more restrictive government regulations in response thereto, would have a negative effect on our business or financial condition and may delay or impair the development and commercialization of our product candidates or demand for such product candidates.

Even if we obtain regulatory approval of our product candidates, the products may not gain market acceptance among physicians, patients, hospitals, cancer treatment centers and others in the medical community.

The use of engineered T cells as a potential cancer treatment is a recent development and may not become broadly accepted by physicians, patients, hospitals, cancer treatment centers and others in the medical community. We expect physicians in the large bone marrow transplant centers to be particularly influential and we may not be able to convince them to use our product candidates for many reasons. For example, certain of the product candidates that we will be developing target a cell surface marker that may be present on cancer cells as well as non-cancerous cells. It is possible that our product candidates may kill these non-cancerous cells, which may result in unacceptable side effects, including death. Additional factors will influence whether our product candidates are accepted in the market, including:

- the clinical indications for which our product candidates are approved;
- physicians, hospitals, cancer treatment centers and patients considering our product candidates as a safe and effective treatment;
- the potential and perceived advantages of our product candidates over alternative treatments;
- the prevalence and severity of any side effects;
- product labeling or product insert requirements of the FDA or other regulatory authorities;
- limitations or warnings contained in the labeling approved by the FDA;
- the timing of market introduction of our product candidates as well as competitive products;
- the cost of treatment in relation to alternative treatments;
- the availability of coverage and adequate reimbursement and pricing by third-party payors and government authorities;
- the willingness of patients to pay out-of-pocket in the absence of coverage and adequate reimbursement by third-party payors and government authorities;
- relative convenience and ease of administration, including as compared to alternative treatments and competitive therapies; and
- the effectiveness of our sales and marketing efforts.

If our product candidates are approved but fail to achieve market acceptance among physicians, patients, hospitals, cancer treatment centers or others in the medical community, we will not be able to generate significant revenue. Even if our products achieve market acceptance, we may not be able to maintain that market acceptance over time if new products or technologies are introduced that are more favorably received than our products, are more cost effective or render our products obsolete.

Coverage and reimbursement may be limited or unavailable in certain market segments for our product candidates, which could make it difficult for us to sell our product candidates, if approved, profitably.

Successful sales of our product candidates, if approved, depend on the availability of coverage and adequate reimbursement from third-party payors including governmental healthcare programs, such as Medicare and Medicaid, managed care organizations and commercial payors, among others. Significant uncertainty exists as to the coverage and reimbursement status of any product candidates for which we obtain regulatory approval. In addition, because our product candidates represent new approaches to the treatment of cancer, we cannot accurately estimate the potential revenue from our product candidates.

Patients who are provided medical treatment for their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their treatment. Obtaining coverage and adequate reimbursement from third-party payors is critical to new product acceptance.

Third-party payors decide which drugs and treatments they will cover and the amount of reimbursement. Reimbursement by a third-party payor may depend upon a number of factors, including, but not limited to, the third-party payor's determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

Obtaining coverage and reimbursement of a product from a government or other third-party payor is a time-consuming and costly process that could require us to provide to the payor supporting scientific, clinical and cost-effectiveness data for the use of our products. Even if we obtain coverage for a given product, if the resulting reimbursement rates are insufficient, hospitals may not approve our product for use in their facility or third-party payors may require co-payments that patients find unacceptably high. Patients are unlikely to use our product candidates unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of our product candidates. Separate reimbursement for the product itself may or may not be available. Instead, the hospital or administering physician may be reimbursed only for providing the treatment or procedure in which our product is used. Further, from time to time, CMS revises the reimbursement systems used to reimburse health care providers, including the Medicare Physician Fee Schedule and Outpatient Prospective Payment System, which may result in reduced Medicare payments. In some cases, private third-party payers rely on all or portions of Medicare payment systems to determine payment rates. Changes to government healthcare programs that reduce payments under these programs may negatively impact payments from private third-party payers, and reduce the willingness of physicians to use our product candidates.

In the United States, no uniform policy of coverage and reimbursement for products exists among third-party payors. Therefore, coverage and reimbursement for products can differ significantly from payor to payor. Further, one payor's determination to provide coverage for a product does not assure that other payors will also provide coverage for the product. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development.

We intend to seek approval to market our product candidates in both the United States and in selected foreign jurisdictions. If we obtain approval in one or more foreign jurisdictions for our product candidates, we will be subject to rules and regulations in those jurisdictions. In some foreign countries, particularly those in Europe, the pricing of biologics is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after obtaining marketing approval of a product candidate. Some of these countries may require the completion of clinical trials that compare the cost-effectiveness of a particular product candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines, but monitor and control company profits. The downward pressure on health care costs has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert a commercial pressure on pricing within a country.

The marketability of any product candidates for which we receive regulatory approval for commercial sale may suffer if government and other third-party payors fail to provide coverage and adequate reimbursement. We expect downward pressure on pharmaceutical pricing to continue. Further, coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

The advancement of healthcare reform may negatively impact our ability to sell our product candidates, if approved, profitably.

Third-party payors, whether domestic or foreign, or governmental or commercial, are developing increasingly sophisticated methods of controlling healthcare costs. In both the United States and certain foreign jurisdictions, there have been a number of legislative and regulatory changes to the health care system that could impact our ability to sell our product candidates, if approved, profitably. In particular, in 2010 the Affordable Care Act was enacted. The Affordable Care Act and its implementing regulations, among other things, revised the methodology by which rebates owed by manufacturers to the state and federal government for covered outpatient drugs and certain biologics, including our product candidates, under the Medicaid drug rebate program are calculated, increased the minimum Medicaid rebates owed by most manufacturers under the Medicaid drug rebate program, extended the Medicaid drug rebate program to utilization of prescriptions of individuals enrolled in Medicaid managed care organizations, subjected manufacturers to new annual fees and taxes for certain branded prescription drugs, and provided incentives to programs that increase the federal government's comparative effectiveness research. Additionally, the Affordable Care Act allowed states to implement expanded eligibility criteria for Medicaid programs, imposed a new Medicare Part D coverage gap discount program, expanded the entities eligible for discounts under the Public Health Service pharmaceutical pricing program and implemented a new Patient-Centered Outcomes Research Institute. We are still unsure of the full impact that the Affordable Care Act will have on our business.

Some of the provisions of the Affordable Care Act have yet to be implemented, and there have been legal and political challenges to certain aspects of the Affordable Care Act. Since January 2017, the U.S. President has signed two Executive Orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by the Affordable Care Act. In December 2017, Congress repealed the tax penalty for an individual's failure to maintain Affordable Care Act-mandated health insurance as part of a tax reform bill. Further, on January 22, 2018, the U.S. President signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain Affordable Care Act-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. Moreover, the Bipartisan Budget Act of 2018 (BBA), among other things, amends the Affordable Care Act, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole". More recently, in July 2018, CMS announced that it is suspending further collections and payments to and from certain Affordable Care Act qualified health plans and health insurance issuers under the Affordable Care Act risk adjustment program pending the outcome of federal district court litigation regarding the method CMS uses to determine this risk adjustment. Congress is continuing to consider legislation that would alter other aspects of the Affordable Care Act. The ultimate content, timing or effect of any healthcare reform legislation on the U.S. healthcare industry is unclear

Further legislation or regulation could be passed that could harm our business, financial condition and results of operations. Other legislative changes have been proposed and adopted since the Affordable Care Act was enacted. For example, in August 2011, President Obama signed into law the Budget Control Act of 2011, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend to Congress proposals in spending reductions. The Joint Select Committee on Deficit Reduction did not achieve a targeted deficit reduction of at least $1.2 trillion for fiscal years 2012 through 2021, triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect beginning on April 1, 2013 and will stay in effect through 2027, unless additional Congressional action is taken. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

There have been, and likely will continue to be, legislative and regulatory proposals at the foreign, federal and state levels directed at broadening the availability of healthcare and containing or lowering the cost of

healthcare. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our products. Such reforms could have an adverse effect on anticipated revenue from product candidates that we may successfully develop and for which we may obtain regulatory approval and may affect our overall financial condition and ability to develop product candidates.

In addition, there has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient assistance programs, and reform government program reimbursement methodologies for drugs. At the federal level, the U.S. President's administration's budget proposal for fiscal year 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Further, the current U.S. President's administration released a "Blueprint", or plan, to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase drug manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products, and reduce the out of pocket costs of drug products paid by consumers. The Department of Health and Human Services (HHS) has already started the process of soliciting feedback on some of these measures and, at the same, is immediately implementing others under its existing authority. While some proposed measures will require authorization through additional legislation to become effective, Congress and the current U.S. President's administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. Individual states in the United States have also become increasingly active in passing legislation and 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.

We cannot predict the initiatives that may be adopted in the future. The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare and/or impose price controls may adversely affect:

- the demand for our product candidates, if we obtain regulatory approval;
- our ability to set a price that we believe is fair for our products;
- our ability to generate revenue and achieve or maintain profitability;
- the level of taxes that we are required to pay; and
- the availability of capital.

Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors, which may adversely affect our future profitability.

Risks Related to Our Intellectual Property

We depend on intellectual property licensed from third parties and termination of any of these licenses could result in the loss of significant rights, which would harm our business.

We are dependent on patents, know-how and proprietary technology, both our own and licensed from others.

We depend substantially on our license agreements with Pfizer, Servier and Cellectis. These licenses may be terminated upon certain conditions. Any termination of these licenses could result in the loss of significant rights

and could harm our ability to commercialize our product candidates. For example, we are dependent on our license with Cellectis for gene-editing technology that is necessary to produce our engineered T cells. In addition, Servier in-licenses some of the intellectual property rights they are licensing to us. To the extent these licensors fail to meet their obligations under their license agreements, which we are not in control of, we may lose the benefits of our license agreements with these licensors. In the future, we may also enter into additional license agreements that are material to the development of our product candidates.

Disputes may also arise between us and our licensors regarding intellectual property subject to a license agreement, including those related to:

- 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 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, or license in the future, prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates.

We are generally also subject to all of the same risks with respect to protection of intellectual property that we license, as we are for intellectual property that we own, which are described below. If we or our licensors fail to adequately protect this intellectual property, our ability to commercialize products could suffer.

If our efforts to protect the proprietary nature of the intellectual property related to our technologies are not adequate, we may not be able to compete effectively in our market.

We rely upon a combination of patents, trade secret protection and license agreements to protect the intellectual property related to our technologies. Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to quickly duplicate or surpass our technological achievements, thus eroding our competitive position in our market.

We have an exclusive collaboration with Servier to develop and commercialize UCART19 and ALLO-501, and we hold the commercial rights to these product candidates in the United States. Under the Servier Agreement, we also have an exclusive option to obtain the same rights to additional product candidates targeting one additional cancer antigen. We also have an exclusive worldwide license from Cellectis to its TALEN gene-editing technology for the development of allogeneic T cell product candidates directed against 15 different cancer antigens. Our collaboration with Servier gives us access to TALEN gene-editing technology for all product candidates under the Servier Agreement. Certain intellectual property which is covered by these agreements may have been developed with funding from the U.S. government. If so, our rights in this intellectual property may be subject to certain research and other rights of the government.

Additional patent applications have been filed, and we anticipate additional patent applications will be filed, both in the United States and in other countries, as appropriate. However, we cannot predict:

- if and when patents will issue;

- the degree and range of protection any issued patents will afford us against competitors including whether third parties will find ways to invalidate or otherwise circumvent our patents;
- whether or not others will obtain patents claiming aspects similar to those covered by our patents and patent applications; or
- whether we will need to initiate litigation or administrative proceedings which may be costly whether we win or lose.

Composition of matter patents for biological and pharmaceutical products such as CAR-based product candidates often provide a strong form of intellectual property protection for those types of products, as such patents provide protection without regard to any method of use. We cannot be certain that the claims in our pending patent applications covering composition of matter of our product candidates will be considered patentable by the United States Patent and Trademark Office (USPTO) or by patent offices in foreign countries, or that the claims in any of our issued patents will be considered valid and enforceable by courts in the United States or foreign countries. Method of use patents protect the use of a product for the specified method. This type of patent does not prevent a competitor from making and marketing a product that is identical to our product for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products "off-label." Although off-label prescriptions may infringe or contribute to the infringement of method of use patents, the practice is common and such infringement is difficult to prevent or prosecute.

The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. The patent applications that we own or in-license may fail to result in issued patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries. Even if the patents do successfully issue, third parties may challenge the patentability, validity, enforceability or scope thereof, for example through inter partes review (IPR) post-grant review or ex parte reexamination before the USPTO or oppositions and other comparable proceedings in foreign jurisdictions, which may result in such patents being cancelled, narrowed, invalidated or held unenforceable. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property or prevent others from designing their products to avoid being covered by our claims. If the breadth or strength of protection provided by the patents and patent applications we hold with respect to our product candidates is threatened, it could dissuade companies from collaborating with us to develop, and threaten our ability to commercialize, our product candidates. Further, if we encounter delays in our clinical trials, the period of time during which we could market our product candidates under patent protection would be reduced. United States patent applications containing or that at any time contained a claim not entitled to a priority date before March 16, 2013 are subject to the "first to file" system implemented by the America Invents Act (2011).

This first to file system 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, we cannot be certain that we were the first to file any patent application related to our product candidates. Furthermore, for United States applications in which all claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third-party or instituted by the USPTO, to determine who was the first to invent any of the subject matter covered by the patent claims of our applications. For United States applications containing a claim not entitled to priority before March 16, 2013, there is a greater level of uncertainty in the patent law in view of the passage of the America Invents Act, which brought into effect significant changes to the United States patent laws, including new procedures for challenging patent applications and issued patents.

Confidentiality agreements with employees and third parties may not prevent unauthorized disclosure of trade secrets and other proprietary information.

In addition to the protection afforded by patents, we seek to rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable, processes for which patents are

difficult to enforce and any other elements of our product discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. Trade secrets, however, may be difficult to protect. Although we require all of our employees to assign their inventions to us, and require all of our employees and key consultants who have access to our proprietary know-how, information, or technology to enter into confidentiality agreements, we cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Furthermore, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent unauthorized material disclosure of our intellectual property to third parties, we will not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, operating results and financial condition.

Third-party claims of intellectual property infringement may prevent or delay our product discovery and development efforts.

Our commercial success depends in part on our avoiding infringement of the patents and proprietary rights of third parties. There is a substantial amount of litigation involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing our product candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our product candidates may give rise to claims of infringement of the patent rights of others.

Third parties may assert that we infringe their patents or are otherwise employing their proprietary technology without authorization and may sue us. We are aware of several U.S. patents held by third parties relating to certain CAR compositions of matter and their methods of use. Generally, conducting clinical trials and other development activities in the United States is not considered an act of infringement. If and when UCART19 or another CAR-based product candidate is approved by the FDA, third parties may then seek to enforce their patents by filing a patent infringement lawsuit against us. Patents issued in the United States by law enjoy a presumption of validity that can be rebutted only with evidence that is “clear and convincing,” a heightened standard of proof. We may not be able to prove in litigation that any patent enforced against us is invalid.

Additionally, there may be third-party patents of which we are currently unaware with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates. Because patent applications can take many years to issue, there may be currently pending patent applications which may later result in issued patents that our product candidates may infringe. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. If any third-party patents were held by a court of competent jurisdiction to cover the manufacturing process of our product candidates, constructs or molecules used in or formed during the manufacturing process, or any final product itself, the holders of any such patents may be able to block our ability to commercialize the product candidate unless we obtained a license under the applicable patents, or until such patents expire or they are finally determined to be held not infringed, unpatentable, invalid or unenforceable. Similarly, if any third-party patent were held by a court of competent jurisdiction to cover aspects of our formulations, processes for manufacture or methods of use, including combination therapy or patient selection methods, the holders of any such patent may be able to block our ability to develop and commercialize the product candidate unless we obtained a license or until such patent expires or is finally determined to be held not infringed, unpatentable, invalid or unenforceable. In either case, such a license may not be available on commercially reasonable terms or at all. If we are unable to obtain a necessary license to a third-party patent on commercially reasonable terms, or at all, our ability to commercialize our product candidates may be impaired or delayed, which could in turn significantly harm our business.

Parties making claims against us may seek and obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize our product candidates. Defense of these

claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business and may impact our reputation. In the event of a successful claim of infringement against us, 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 or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure. We cannot predict whether any such license would be available at all or whether it would be available on commercially reasonable terms. Furthermore, even in the absence of litigation, we may need to obtain licenses from third parties to advance our research or allow commercialization of our product candidates. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we would be unable to further develop and commercialize our product candidates, which could harm our business significantly.

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.

Presently we have rights to the intellectual property, through licenses from third parties and under patent applications that we own or will own, to develop UCART19 and our other product candidates. Because our programs may involve additional product candidates that may require the use of proprietary rights held by third parties, the growth of our business will likely depend in part on our ability to acquire, in-license or use these proprietary rights.

Our product candidates may also require specific formulations to work effectively and efficiently and these rights may be held by others. 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. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, which would harm our business. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors 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. We may need to cease use of the compositions or methods covered by such third-party intellectual property rights.

The licensing and acquisition of third-party intellectual property rights is a competitive area, and companies, which 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.

We may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe our patents or the patents of our licensors. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that one or more of our patents is not valid or is unenforceable or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly and could put our patent applications at risk of not issuing. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, 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 or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure.

Interference proceedings provoked by third parties or brought by the USPTO may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our licensors. An unfavorable outcome could result in a loss of our current patent rights and could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Litigation or interference proceedings may result in a decision adverse to our interests and, even if we are successful, may result in substantial costs and distract our management and other employees. We may not be able to prevent, alone or with our licensors, misappropriation of our trade secrets or confidential information, particularly in countries where the laws may not protect those rights as fully as in the United States.

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. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. 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.

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

Periodic maintenance fees on any issued patent are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Noncompliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. In such an event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

The lives of our patents may not be sufficient to effectively protect our products and business.

Patents have a limited lifespan. In the United States, the natural expiration of a patent is generally 20 years after its first effective filing date. Although various extensions may be available, the life of a patent, and the protection it affords, is limited. Even if patents covering our product candidates are obtained, once the patent life has expired for a product, we may be open to competition from biosimilar or generic medications. In addition, although upon issuance in the United States a patent's life can be increased based on certain delays caused by the USPTO, this increase can be reduced or eliminated based on certain delays caused by the patent applicant during patent prosecution. If we do not have sufficient patent life to protect our products, our business and results of operations will be adversely affected.

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

We may in the future be subject to claims that former employees, collaborators, or other third parties have an interest in our patents 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 product candidates. Litigation may be necessary to defend against these and other claims challenging inventorship. 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, valuable intellectual property. 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 management and other employees.

Issued patents covering our product candidates could be found unpatentable, invalid or unenforceable if challenged in court or the USPTO.

If we or one of our licensing partners initiate legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that the patent covering our product candidate, as applicable, is invalid and/or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace, and there are numerous grounds upon which a third party can assert invalidity or unenforceability of a patent. Third parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include IPR, ex parte re-examination and post grant review in the United States, and equivalent proceedings in foreign jurisdictions (e.g., opposition proceedings). Such proceedings could result in revocation or amendment to our patents in such a way that they no longer cover and protect our product candidates. The outcome following legal assertions of unpatentability, 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, our patent counsel and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of unpatentability, invalidity and/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 could have a material adverse impact on our business.

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

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involve both technological and legal complexity, and is therefore costly, time-consuming and inherently uncertain. Recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. For example, in the 2013 case, *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, the U.S. Supreme Court held that certain claims to DNA molecules are not patentable. While we do not believe that any of the patents owned or licensed by us will be found invalid based on this decision, we cannot predict how future decisions by the courts, the U.S. Congress or the USPTO may impact the value of our patents.

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

We may not be able to protect our intellectual property rights outside the United States. Filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in 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 inventions in and into the United States or other jurisdictions. Competitors may use our technologies 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 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 biopharmaceutical products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our 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 rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

We have received confidential and proprietary information from third parties. In addition, we employ individuals who were previously employed at other biotechnology or pharmaceutical companies. We may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of these third parties or our employees' former employers. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial cost and be a distraction to our management and employees.

Risks Related to This Offering and Ownership of Our Common Stock

We do not know whether an active, liquid and orderly trading market will develop for our common stock or what the market price of our common stock will be and as a result it may be difficult for you to sell your shares of our common stock.

Prior to this offering there has been no public market for shares of our common stock. An active trading market for our shares may never develop or be sustained following this offering. You may not be able to sell your shares quickly or at the market price if trading in shares of our common stock is not active. The initial public offering price for our common stock was determined through negotiations with the underwriters, and the negotiated price may not be indicative of the market price of the common stock after the offering. As a result of these and other factors, you may be unable to resell your shares of our common stock at or above the initial public offering price. Further, an inactive market may also impair our ability to raise capital by selling shares of our common stock and may impair our ability to enter into strategic partnerships or acquire companies or products by using our shares of common stock as consideration.

The price of our stock may be volatile, and you could lose all or part of your investment.

The trading price of our common stock following this offering is likely to be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control, including limited trading volume. In addition to the factors discussed in this "Risk Factors" section and elsewhere in this prospectus, these factors include:

- the commencement, enrollment or results of our ongoing and planned clinical trials of our product candidates or any future clinical trials we or Servier may conduct, or changes in the development status of our product candidates;
- our or Servier's decision to initiate a clinical trial, not to initiate a clinical trial or to terminate an existing clinical trial;
- adverse results or delays in clinical trials;
- any delay in our regulatory filings for our product candidates and any adverse development or perceived adverse development with respect to the applicable regulatory authority's review of such

filings, including without limitation the FDA's issuance of a "refusal to file" letter or a request for additional information;

- our failure to commercialize our product candidates;
- adverse regulatory decisions, including failure to receive regulatory approval of our product candidates;
- changes in laws or regulations applicable to our products, including but not limited to clinical trial requirements for approvals;
- adverse developments concerning our manufacturers or suppliers;
- our inability to obtain adequate product supply for any approved product or inability to do so at acceptable prices;
- our inability to establish collaborations if needed;
- additions or departures of key scientific or management personnel;
- unanticipated serious safety concerns related to immuno-oncology or related to the use of our product candidates;
- introduction of new products or services offered by us or our competitors;
- announcements of significant acquisitions, strategic partnerships, joint ventures or capital commitments by us or our competitors;
- our ability to effectively manage our growth;
- the size and growth of our initial cancer target markets;
- our ability to successfully treat additional types of cancers or at different stages;
- actual or anticipated variations in quarterly operating results;
- our cash position;
- our failure to meet the estimates and projections of the investment community or that we may otherwise provide to the public;
- publication of research reports about us or our industry, or immunotherapy in particular, or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- changes in the market valuations of similar companies;
- overall performance of the equity markets;
- sales of our common stock by us or our stockholders in the future;
- trading volume of our common stock;
- changes in accounting practices;
- ineffectiveness of our internal controls;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;
- significant lawsuits, including patent or stockholder litigation;
- general political and economic conditions; and
- other events or factors, many of which are beyond our control.

In addition, the stock market in general, and the Nasdaq Global Select Market and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. If the market price of our common stock after this offering does not exceed the initial public offering price, you may not realize any return on your investment in us and may lose some or all of your investment. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. This type of litigation, if instituted, could result in substantial costs and a diversion of management's attention and resources, which would harm our business, operating results or financial condition.

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

We may seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships and alliances and licensing arrangements. 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 may include liquidation or other preferences that adversely affect your rights as a stockholder. The incurrence of indebtedness would result in increased fixed payment obligations and could involve certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we raise additional funds through strategic partnerships and alliances and licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies or product candidates, or grant licenses on terms unfavorable to us.

We do not intend to pay dividends on our common stock so any returns will be limited to the value of our 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. Any return to stockholders will therefore be limited to the appreciation of their stock.

Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

Prior to this offering, our executive officers, directors, and 5% stockholders beneficially owned approximately 47.2% of our voting stock as of June 30, 2018, and, upon the closing of this offering, that same group will continue to beneficially own a significant percentage of our outstanding voting stock. Accordingly, even after this offering, these stockholders will have the ability to influence us through this ownership position and significantly affect the outcome of all matters requiring stockholder approval. For example, these stockholders may be able to significantly affect the outcome of elections of directors, amendments of our organizational documents, or approval of any merger, sale of assets, or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may feel are in your best interest as one of our stockholders.

If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.

The initial public offering price is substantially higher than the net tangible book value per share of our common stock. Investors purchasing common stock in this offering will pay a price per share that substantially exceeds the book value of our tangible assets after subtracting our liabilities. As a result, investors purchasing

common stock in this offering will incur immediate dilution of $11.97 per share, based on the initial public offering price of $18.00 per share. Further, investors purchasing common stock in this offering will contribute approximately 43.3% of the total amount invested by stockholders since our inception, but will own only approximately 15.6% of the shares of common stock outstanding after giving effect to this offering.

This dilution is due to our investors who purchased shares prior to this offering having paid substantially less when they purchased their shares than the price offered to the public in this offering and the exercise of stock options granted to our employees. To the extent outstanding options are exercised, there will be further dilution to new investors. As a result of the dilution to investors purchasing shares in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation. For a further description of the dilution that you will experience immediately after this offering, see “Dilution.”

We are an emerging growth company, and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an emerging growth company, as defined in the JOBS Act enacted in April 2012. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements and exemptions from the requirements of holding nonbinding advisory votes on executive compensation and stockholder approval of any golden parachute payments not previously approved. We could be an emerging growth company for up to five years following the year in which we complete this offering, although circumstances could cause us to lose that status earlier. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the completion of this offering, (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 requires the market value of our common stock that is held by non-affiliates to exceed $700 million as of the prior June 30th, and (2) the date on which we have issued more than $1 billion in non-convertible debt during the prior three-year period.

Even after we no longer qualify as an emerging growth company, we may still qualify as a “smaller reporting company” which would allow us to take advantage of many of the same exemptions from disclosure requirements including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements. We cannot predict if investors will find our common stock less attractive because we may 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 more volatile.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

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

As a public company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. We will be subject to the reporting requirements of the Securities Exchange Act of 1934, as amended (Exchange Act), which will require, among other things, that we file with the Securities and Exchange

Commission (SEC) annual, quarterly and current reports with respect to our business and financial condition. In addition, the Sarbanes-Oxley Act, as well as rules subsequently adopted by the SEC and the Nasdaq Global Select Market to implement provisions of the Sarbanes-Oxley Act, impose significant requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. Further, in July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) was enacted. There are significant corporate governance and executive compensation related provisions in the Dodd-Frank Act that require the SEC to adopt additional rules and regulations in these areas such as "say on pay" and proxy access. Emerging growth companies are permitted to implement many of these requirements over a longer period and up to five years from the pricing of this offering. We intend to take advantage of this legislation for as long as we are permitted to do so. Once we become required to implement these requirements, we will incur additional compliance-related expenses. 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 continue to 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.

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.

If our existing stockholders sell, or indicate an intention to sell, substantial amounts of our common stock in the public market after the lock-up and other legal restrictions on resale discussed in this prospectus lapse, the trading price of our common stock could decline. Based on shares of common stock outstanding as of June 30, 2018, upon the closing of this offering we will have outstanding a total of 115,226,841 shares of common stock. Of these shares, only the shares of common stock sold in this offering by us (excluding any shares sold to our directors and officers in the directed share program), plus any shares sold upon exercise of the underwriters' option to purchase additional shares, will be freely tradable without restriction in the public market immediately following this offering. The underwriters, however, may, in their sole discretion, permit our officers, directors and other stockholders who are subject to these lock-up agreements to sell shares prior to the expiration of the lock-up agreements.

We expect that the lock-up agreements pertaining to this offering will expire 180 days from the date of this prospectus. In addition, shares of common stock that are either subject to outstanding options or reserved for future issuance under the 2018 Plan will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements and Rule 144 and Rule 701 under the Securities Act of 1933, as amended (Securities Act). If these additional shares of common stock are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

After this offering, the holders of 69,512,098 shares of our common stock will be entitled to rights with respect to the registration of their shares under the Securities Act, subject to the 180-day lock-up agreements described above. See "Description of Capital Stock—Registration Rights." 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 could have a material adverse effect on the trading price of our common stock.

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to the 2018 Plan, could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.

We expect that significant additional capital may be needed in the future to continue our planned operations, including conducting clinical trials, commercialization efforts, expanded research and development activities and costs associated with operating a public company. To raise capital, we may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell common stock, convertible securities or other equity securities, investors may be materially diluted by subsequent sales. Such sales may also result in material dilution to our existing stockholders, and new investors could gain rights, preferences and privileges senior to the holders of our common stock, including shares of common stock sold in this offering.

Pursuant to the 2018 Plan, certain amendments of which became effective on the business day prior to the public trading date of our common stock, our management is authorized to grant stock options to our employees, directors and consultants.

Initially, the aggregate number of shares of our common stock that may be issued pursuant to stock awards under the 2018 Plan is 9,335,850 shares. Additionally, the number of shares of our common stock reserved for issuance under the 2018 Plan will automatically increase on January 1 of each year, beginning on January 1, 2019 and continuing through and including January 1, 2028, by 5% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares determined by our board of directors. Unless our board of directors elects not to increase the number of shares available for future grant each year, our stockholders may experience additional dilution, which could cause our stock price to fall.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds from this offering, including for any of the purposes described in the section entitled “Use of Proceeds,” and you will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our management might not apply our net proceeds in ways that ultimately increase the value of your investment. The failure by our management to apply these funds effectively could harm our business. Pending their use, we may invest the net proceeds from this offering in short-term, investment-grade, interest-bearing securities. These investments may not yield a favorable return to our stockholders. If we do not invest or apply the net proceeds from this offering in ways that enhance stockholder value, we may fail to achieve expected financial results, which could cause our stock price to decline.

Anti-takeover provisions under our charter documents and Delaware law could delay or prevent a change of control which could limit the market price of our common stock and may prevent or frustrate attempts by our stockholders to replace or remove our current management.

Our amended and restated certificate of incorporation and amended and restated bylaws, which are to become effective at or prior to the closing of this offering, contain provisions that could delay or prevent a change of control of our company or changes in our board of directors that our stockholders might consider favorable. Some of these provisions include:

- a board of directors divided into three classes serving staggered three-year terms, such that not all members of the board will be elected at one time;

- a prohibition on stockholder action through written consent, which requires that all stockholder actions be taken at a meeting of our stockholders;
- a requirement that special meetings of stockholders be called only by the chairman of the board of directors, the chief executive officer, or by a majority of the total number of authorized directors;
- advance notice requirements for stockholder proposals and nominations for election to our board of directors;
- a requirement that no member of our board of directors may be removed from office by our stockholders except for cause and, in addition to any other vote required by law, upon the approval of not less than two-thirds of all outstanding shares of our voting stock then entitled to vote in the election of directors;
- a requirement of approval of not less than two-thirds of all outstanding shares of our voting stock to amend any bylaws by stockholder action or to amend specific provisions of our certificate of incorporation; and
- the authority of the board of directors to issue preferred stock on terms determined by the board of directors without stockholder approval and which preferred stock may include rights superior to the rights of the holders of common stock.

In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporate Law, which may prohibit certain business combinations with stockholders owning 15% or more of our outstanding voting stock. These anti-takeover provisions and other provisions in our amended and restated certificate of incorporation and amended and restated bylaws could make it more difficult for stockholders or potential acquirors to obtain control of our board of directors or initiate actions that are opposed by the then-current board of directors and could also delay or impede a merger, tender offer or proxy contest involving our company. These provisions could also discourage proxy contests and make it more difficult for you and other stockholders to elect directors of your choosing or cause us to take other corporate actions you desire. Any delay or prevention of a change of control transaction or changes in our board of directors could cause the market price of our common stock to decline.

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

The trading market for our common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If no securities or industry analysts commence coverage of our company, the trading price for our stock would likely be negatively impacted. In the event securities or industry analysts initiate coverage, if one or more of the analysts who covers us downgrades our stock or publishes inaccurate or unfavorable research about our business, our stock price may decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements. The forward-looking statements are contained principally in the sections entitled "Prospectus Summary," "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business." These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties and other factors which 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. Forward-looking statements include, but are not limited to, statements about:

- the success, cost, timing and potential indications of our product development activities and clinical trials, including the ongoing clinical trials of UCART19;
- the timing of our planned IND submissions to the FDA for our product candidates, including ALLO-501 and ALLO-715;
- the timing of the initiation, enrollment and completion of planned clinical trials;
- our ability to obtain and maintain regulatory approval of our product candidates, including UCART19, ALLO-501 and ALLO-715 in any of the indications for which we plan to develop them, and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- our ability to obtain funding for our operations, including funding necessary to complete the clinical trials of any of our product candidates, including UCART19, ALLO-501 and ALLO-715;
- our plans to research, develop and commercialize our product candidates, including UCART19, ALLO-501 and ALLO-715;
- our ability to attract and retain collaborators with development, regulatory and commercialization expertise;
- the size of the markets for our product candidates, and our ability to serve those markets;
- our ability to successfully commercialize our product candidates, including UCART19, ALLO-501 and ALLO-715;
- the rate and degree of market acceptance of our product candidates, including UCART19, ALLO-501 and ALLO-715;
- our ability to develop and maintain sales and marketing capabilities, whether alone or with potential future collaborators;
- regulatory developments in the United States and foreign countries;
- the performance of our third-party suppliers and manufacturers;
- the success of competing therapies that are or become available;
- our ability to attract and retain key scientific or management personnel;
- our use of the proceeds from this offering;
- the accuracy of our estimates regarding expenses, future revenues, capital requirements and needs for additional financing; and
- our expectations regarding our ability to obtain and maintain intellectual property protection for our product candidates and our ability to operate our business without infringing on the intellectual property rights of others.

In some cases, you can identify these statements by terms such as "anticipate," "believe," "could," "estimate," "expects," "intend," "may," "plan," "potential," "predict," "project," "should," "will," "would" or the

negative of those terms, and similar expressions that convey uncertainty of future events or outcomes. These forward-looking statements reflect our management's beliefs and views with respect to future events and are based on estimates and assumptions as of the date of this prospectus and are subject to risks and uncertainties. In addition, statements that "we believe" and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and investors are cautioned not to unduly rely upon these statements. We discuss many of the risks associated with the forward-looking statements in this prospectus in greater detail under the heading "Risk Factors." Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. Given these uncertainties, you should not place undue reliance on these forward-looking statements.

You should carefully read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in this prospectus by these cautionary statements.

Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in any forward-looking statements, whether as a result of new information, future events or otherwise.

USE OF PROCEEDS

We estimate that we will receive net proceeds of approximately $297.8 million (or approximately $343.0 million if the underwriters' option to purchase additional shares is exercised in full) from the sale of the shares of common stock offered by us in this offering, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

The principal purposes of this offering are to obtain additional capital to support our operations, to create a public market for our common stock and to facilitate our future access to the public equity markets. We anticipate that we will use the net proceeds of this offering as follows:

- approximately $25.0 million to fund our portion of the costs for the ongoing UCART19 CALM and PALL clinical trials;
- approximately $40.0 million to fund our portion of the costs for the planned UCART19 CALM II and PALL II clinical trials;
- approximately $40.0 million to fund our portion of the costs for the planned clinical trial of ALLO-501;
- approximately $60.0 million to fund the planned clinical trial of ALLO-715;
- approximately $45.0 million to fund the transition services from Pfizer and the expansion of our facilities, including the build-out of our headquarters in South San Francisco, California;
- approximately $35.0 million to fund our internal research and development capabilities to advance new product candidates; and
- the remainder for working capital and other general corporate purposes, including the additional costs associated with being a public company.

We may also use a portion of the net proceeds from this offering to in-license, acquire, or invest in complementary businesses, technologies, products or assets. However, we have no current commitments or obligations to do so.

We believe that the net proceeds from this offering, together with our existing cash, cash equivalents and marketable securities, will enable us to fund our operating expenses and capital expenditure requirements through at least the next 36 months from the date of this offering and through the completion of the CALM and PALL clinical trials, the Phase 1 clinical trial of ALLO-501 and the Phase 1 clinical trial of ALLO-715. We may require additional funding to be able to complete the CALM II and PALL II clinical trials, and any Phase 2 portion of the ALLO-501 and ALLO-715 clinical trials. It is difficult to predict the cost and timing required to complete our clinical trials due to, among other factors, our lack of experience with initiating and conducting clinical trials, the rate of subject enrollment in our clinical trials, filing requirements with various regulatory agencies, clinical trial results, and the actual costs of manufacturing and supplying our product candidates.

Our expected use of net proceeds from this offering represents our current intentions based upon our present plans and business condition. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering, or the amounts that we will actually spend on the uses set forth above. The amounts and timing of our actual use of the net proceeds will vary depending on numerous factors, including our ability to obtain additional financing, the progress, cost and results of our preclinical and clinical development programs, and whether we are able to enter into future licensing or collaboration arrangements. We may find it necessary or advisable to use the net proceeds for other purposes, and our management will have broad discretion in the application of the net proceeds, and investors will be relying on our judgment regarding the application of the net proceeds from this offering.

Pending their use, we plan to invest the net proceeds from this offering in short- and medium-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain all available funds and any future earnings to support our operations and finance the growth and development of our business. We do not intend to pay cash dividends on our common stock for the foreseeable future. Any future determination related to our dividend policy will be made at the discretion of our board of directors and will depend upon, among other factors, our results of operations, financial condition, capital requirements, contractual restrictions, business prospects and other factors our board of directors may deem relevant.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and our capitalization as of June 30, 2018 as follows:

- on an actual basis;
- on a pro forma basis to reflect (i) the filing and effectiveness of our amended and restated certificate of incorporation immediately prior to the completion of this offering, (ii) the conversion of all outstanding shares of our convertible preferred stock as of June 30, 2018 into 61,655,922 shares of our common stock immediately upon the closing of this offering, (iii) the receipt of $150.0 million in cash proceeds from our convertible preferred stockholders in July and August 2018 related to subscriptions receivable, (iv) the receipt of $116.9 million in net cash proceeds from the sale of the 2018 Notes in September 2018 (which is reflected in cash and cash equivalents, common stock, and additional paid-in capital) and (v) the settlement of the 2018 Notes into 7,856,176 shares of our common stock and an aggregate charge to accumulated deficit of $24.5 million, of which $21.2 million relates to the loss resulting in the change in fair value of the 2018 Notes from the issuance date through their settlement and $3.3 million relates to the recognition of debt issuance costs that will be expensed on the 2018 Notes issuance date in connection with the closing of this offering; and
- on a pro forma as adjusted basis to give effect to (i) the pro forma adjustments set forth above and (ii) our issuance and sale of 18,000,000 shares of our common stock in this offering at the initial public offering price of $18.00 per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

You should read this information together with the sections entitled “Selected Financial Data,” “Description of Capital Stock” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our financial statements and related notes included elsewhere in this prospectus.

	As of June 30, 2018		
	Actual	Pro Forma	Pro Forma as Adjusted
	(Unaudited) (In thousands, except share and per share data)		
Cash and cash equivalents	$ 143,927	$ 410,827	$ 708,647
Convertible preferred stock, $0.001 par value; 11,743,987 shares authorized, issued and outstanding, actual; no shares authorized, issued and outstanding, pro forma and pro forma as adjusted	$ 411,052	$ —	$ —
Subscriptions receivable from preferred stockholders	(150,000)	—	—
Stockholders’ (deficit) equity:			
Preferred stock, $0.001 par value; no shares authorized, issued and outstanding, actual; 10,000,000 shares authorized, no shares issued and outstanding, pro forma and pro forma as adjusted	—	—	—
Common stock, $0.001 par value; 101,000,000 shares authorized, 27,714,743 shares issued and outstanding, actual; 200,000,000 shares authorized, 97,226,841 shares issued and outstanding, pro forma; 200,000,000 shares authorized, 115,226,841 shares issued and outstanding, pro forma as adjusted	28	97	115
Additional paid-in capital	8,054	560,449	858,251
Accumulated deficit	(137,522)	(162,034)	(162,034)
Total stockholders’ (deficit) equity	(129,440)	398,512	696,332
Total capitalization	$ 131,612	$ 398,512	$ 696,332

The outstanding share information in the table above excludes, as of June 30, 2018, the following:

- 7,344,225 shares of common stock issuable upon the exercise of stock options outstanding as of June 30, 2018, with a weighted-average exercise price of $2.27 per share;
- 2,347,275 shares of common stock issuable upon the exercise of outstanding stock options granted after June 30, 2018, at a weighted-average exercise price of $6.87 per share;
- 9,335,850 shares of common stock reserved for future issuance under the 2018 Plan, as well as any automatic increases in the number of shares of our common stock reserved for future issuance under this plan, which became effective upon the execution of the underwriting agreement for this offering (including 1,112,753 shares of common stock reserved for issuance under our Prior Plan, which shares were added to the 2018 Plan upon its effectiveness); and
- 1,160,000 shares of common stock reserved for issuance under the ESPP, as well as any automatic increases in the number of shares of our common stock reserved for future issuance under this plan, which became effective upon the execution of the underwriting agreement for this offering.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be immediately diluted to the extent of the difference between the initial public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock after this offering.

As of June 30, 2018, we had a historical net tangible book deficit of $(130.5) million, or $(4.71) per share of common stock. Our historical net tangible book deficit per share represents the amount of our total tangible assets less total liabilities and convertible preferred stock net of subscriptions receivable, divided by the total number of shares of common stock outstanding at June 30, 2018.

After giving effect to (i) the automatic conversion of all outstanding shares of our convertible preferred stock into 61,655,922 shares of our common stock in connection with the closing of this offering, (ii) the receipt of $150.0 million in cash proceeds from our convertible preferred stockholders in July and August 2018 related to subscriptions receivable and (iii) the receipt of $116.9 million in net cash proceeds from the sale of the 2018 Notes in September 2018 and the settlement of the 2018 Notes into 7,856,176 shares of our common stock and an aggregate charge to accumulated deficit of $24.5 million, of which $21.2 million relates to the loss resulting in the change in fair value of the 2018 Notes from the issuance date through their settlement and $3.3 million relates to the recognition of debt issuance costs that will be expensed on the 2018 Notes issuance date.

Net tangible book value dilution per share to new investors represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the pro forma as adjusted net tangible book value per share of common stock immediately after completion of this offering. After giving further effect to the sale of shares of our common stock that we are offering at the initial public offering price of $18.00 per share, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of June 30, 2018 was $695.3 million, or approximately $6.03 per share. This amount represents an immediate increase in pro forma net tangible book value of $1.94 per share to our existing stockholders and an immediate dilution in pro forma net tangible book value of approximately $11.97 per share to new investors participating in this offering.

Dilution per share to new investors is determined by subtracting pro forma as adjusted net tangible book value per share after this offering from the initial public offering price per share paid by new investors. The following table illustrates this dilution:

Initial public offering price per share		$18.00
Historical net tangible book deficit per share at June 30, 2018, before giving effect to this offering	$(4.71)	
Pro forma increase in historical net tangible book value per share attributable to conversion of all outstanding shares of convertible preferred stock and of all 2018 Notes	8.80	
Pro forma net tangible book value per share at June 30, 2018, before giving effect to this offering.	4.09	
Increase in pro forma net tangible book value per share attributable to investors participating in this offering	1.94	
Pro forma as adjusted net tangible book value per share after this offering		6.03
Dilution per share to new investors participating in this offering		$11.97

If the underwriters exercise their option to purchase additional shares of our common stock in full in this offering, the pro forma as adjusted net tangible book value after the offering would be $6.28 per share, the increase in pro forma as adjusted net tangible book value per share to existing stockholders would be $0.25 per share and the dilution per share to new investors would be $11.72 per share.

To the extent that outstanding options with an exercise price per share that is less than the pro forma as adjusted net tangible book value per share are exercised, new investors will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

The following table summarizes on a pro forma as adjusted basis as of June 30, 2018, the number of shares of common stock purchased or to be purchased from us, the total consideration paid or to be paid to us in cash and the average price per share paid by existing securityholders for shares issued prior to or in connection with the closing of this offering and the price to be paid by new investors in this offering. The calculation below is based on the initial public offering price of $18.00 per share, before deducting the underwriting discounts and commissions and estimated offering expenses payable by us. As the table below shows, investors participating in this offering will pay an average price per share substantially higher than our existing securityholders paid.

	Shares Purchased		Total Consideration		Weighted-Average Price Per Share
	Number	Percent	Amount	Percent	
Existing securityholders	97,226,841	84.4%	$423,522,314	56.7%	$ 4.36
Investors participating in this offering	18,000,000	15.6	324,000,000	43.3	$ 18.00
Total	115,226,841	100.0%	$747,522,314	100.0%	

The foregoing tables and calculations exclude:

- 7,344,225 shares of common stock issuable upon the exercise of stock options outstanding as of June 30, 2018, with a weighted-average exercise price of $2.27 per share;
- 2,347,275 shares of common stock issuable upon the exercise of outstanding stock options granted after June 30, 2018, at a weighted-average exercise price of $6.87 per share;
- 9,335,850 shares of common stock reserved for future issuance under the 2018 Plan, as well as any automatic increases in the number of shares of our common stock reserved for future issuance under this plan, which became effective upon the execution of the underwriting agreement for this offering (including 1,112,753 shares of common stock reserved for issuance under our Prior Plan which shares were added to the 2018 Plan upon its effectiveness); and
- 1,160,000 shares of common stock reserved for issuance under the ESPP, as well as any automatic increases in the number of shares of our common stock reserved for future issuance under this plan, which became effective upon the execution of the underwriting agreement for this offering.

We may choose to raise additional capital through the sale of equity or debt due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent we issue additional shares of common stock or other equity or convertible debt securities in the future, there will be further dilution to investors participating in this offering.

SELECTED FINANCIAL DATA

The following tables set forth our selected financial data as of, and for the periods ended on, the dates indicated. We have derived the selected statement of operations and comprehensive loss data for the period from November 30, 2017 (inception) to December 31, 2017 and balance sheet data as of December 31, 2017 from our audited financial statements included elsewhere in this prospectus. We have derived the selected statement of operations and comprehensive loss data for the six months ended June 30, 2018 and the balance sheet data as of June 30, 2018 from our unaudited interim financial statements included elsewhere in this prospectus. Our unaudited interim financial statements have been prepared on the same basis as our audited financial statements and, in our opinion, reflect all adjustments, consisting only of normal recurring adjustments, that are necessary for the fair presentation of our unaudited interim financial statements. The selected financial data included in this section are not intended to replace the financial statements and related notes included elsewhere in this prospectus. You should read the selected financial data together with the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results to be expected for any other period in the future, and our interim results are not necessarily indicative of the results to be expected for the full year or any other period.

	Period from November 30, 2017 (Inception) to December 31, 2017	Six Months Ended June 30, 2018 (Unaudited)
	(In thousands, except share and per share data)	
Statements of Operations and Comprehensive Loss Data:		
Operating expenses:		
Research and development	$ —	$ 122,486
General and administrative	2	15,123
Total operating expenses	2	137,609
Loss from operations	(2)	(137,609)
Interest and other income, net	—	110
Net and comprehensive loss	$ (2)	$ (137,499)
Net loss per share, basic and diluted(1)	$ 0.00	$ (9.42)
Weighted-average shares used in computing net loss per share, basic and diluted(1)	26,249,993	14,600,379
Pro forma net loss per share, basic and diluted (unaudited)(1)		$ (3.12)
Weighted-average shares used in computing pro forma net loss per share, basic and diluted (unaudited)(1)		44,011,274

(1) See Notes 2 and 11 to our financial statements included elsewhere in this prospectus for a description of how we compute basic and diluted net loss per share and basic and diluted unaudited pro forma net loss per share, and the weighted-average number of shares used in the computation of these per share amounts.

	As of December 31, 2017	As of June 30, 2018 (Unaudited)
	(In thousands)	
Balance Sheet Data:		
Cash and cash equivalents	$ —	$ 143,927
Total assets	—	148,845
Working capital(1)	—	129,519
Total liabilities	2	17,233
Convertible preferred stock	—	411,052
Subscriptions receivable from preferred stockholders	—	(150,000)
Accumulated deficit	(23)	(137,522)
Total stockholders' (deficit) equity	(2)	(129,440)

(1) We define working capital as current assets less current liabilities. See our financial statements and related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with the section entitled "Selected Financial Data" and our financial statements and related notes appearing elsewhere in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the section entitled "Risk Factors," 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. You should carefully read the section entitled "Risk Factors" to gain an understanding of the important factors that could cause actual results to differ materially from our forward-looking statements. Please also see the section entitled "Special Note Regarding Forward-Looking Statements."

Overview

We are a clinical stage immuno-oncology company pioneering the development and commercialization of genetically engineered allogeneic T cell therapies for the treatment of cancer. We are developing a pipeline of off-the-shelf T cell product candidates that are designed to target and kill cancer cells. Our engineered T cells are allogeneic, meaning they are derived from healthy donors for intended use in any patient, rather than from an individual patient for that patient's use, as in the case of autologous T cells. We believe this key difference will enable us to deliver readily available treatments faster, more reliably, at greater scale, and to more patients.

In collaboration with Servier, we are developing UCART19, a CAR T cell product candidate targeting CD19. UCART19 is being studied in clinical trials in patients with R/R B-cell precursor ALL, and we expect UCART19 to be advanced to potential registrational trials in the second half of 2019. We also plan to submit an IND in the first half of 2019 for our second allogeneic anti-CD19 CAR T cell product candidate, ALLO-501, for the treatment of NHL. In addition, we have a deep pipeline of allogeneic CAR T cell product candidates targeting multiple promising antigens in a host of hematological malignancies and solid tumors. For example, we plan to submit an IND in 2019 for an allogeneic CAR T cell product candidate targeting BCMA for the treatment of multiple myeloma. We believe our management team's experience in immuno-oncology and specifically in CAR T cell therapy will help drive the rapid development and, if approved, the commercialization of these potentially curative therapies for patients with aggressive cancer.

Our allogeneic approach involves engineering healthy donor T cells, which we believe will allow for the creation of an inventory of off-the-shelf products that can be delivered to a larger portion of eligible patients throughout the world.

We were incorporated in November 2017. In April 2018, we acquired certain assets from Pfizer, including strategic license and collaboration agreement and other intellectual property related to the development and administration of allogeneic CAR T cells for the treatment of cancer. We have an exclusive collaboration with Servier to develop and commercialize UCART19 and ALLO-501, and we hold the commercial rights to these product candidates in the United States. Under the Servier Agreement, we also have an exclusive option to obtain the same rights to additional product candidates targeting one additional cancer antigen. We also have an exclusive worldwide license from Cellectis to its TALEN gene-editing technology for the development of allogeneic T cell product candidates directed against 15 different cancer antigens. Our collaboration with Servier gives us access to TALEN gene-editing technology for all product candidates under the Servier Agreement. In connection with the Pfizer asset acquisition, we hired 39 employees from Pfizer, who are primarily research and technical operation employees and were leading the research and development of our product candidates and next generation gene engineering and cell engineering technologies at Pfizer.

Since our inception through June 30, 2018, our operations have been financed primarily by net proceeds of $149.3 million from the sale of our convertible preferred stock. As of June 30, 2018, we had $143.9 million in cash and cash equivalents. In July and August 2018, we received $150.0 million in cash proceeds from our convertible preferred stockholders related to subscriptions receivable. In September 2018, we sold and issued $120.2 million aggregate principal amount of 2018 Notes and received net cash proceeds of $116.9 million. The 2018 Notes do not accrue interest and will automatically settle into shares of our common stock in connection with the closing of this offering at a settlement price equal to 85% of the initial public offering price per share. Cash in excess of immediate requirements is invested in accordance with our investment policy, primarily with a view to liquidity and capital preservation.

Since inception, we have had significant operating losses, the vast majority of which are attributable to acquired intangible in-process research and development costs pursuant to the Asset Contribution Agreement with Pfizer. Our net loss and comprehensive loss was $137.5 million for the six months ended June 30, 2018 and as of June 30, 2018, we had an accumulated deficit of $137.5 million. Our primary use of cash is to fund operating expenses, which consist primarily of research and development expenditures, and to a lesser extent, general and administrative expenditures. Cash used to fund operating expenses is impacted by the timing of when we pay these expenses, as reflected in the change in our outstanding accounts payable and accrued expenses. We expect to continue to incur net losses for the foreseeable future, and we expect our research and development expenses, general and administrative expenses, and capital expenditures will continue to increase. In particular, we expect our expenses and losses to increase as we continue our development of, and seek regulatory approvals for, our product candidates, and begin to commercialize any approved products, as well as hire additional personnel, develop commercial infrastructure, pay fees to outside consultants, lawyers and accountants, and incur increased costs associated with being a public company such as expenses related to services associated with maintaining compliance with Nasdaq listing rules and SEC requirements, insurance and investor relations costs. Our net losses may fluctuate significantly from quarter-to-quarter and year-to-year, depending on the timing of our clinical trials and our expenditures on other research and development activities.

Based upon our current operating plan, we believe that the net proceeds from this offering, together with our existing cash and cash equivalents as of June 30, 2018 and the receipt of $150.0 million in cash proceeds from our convertible preferred stockholders in July and August 2018 related to subscriptions receivable and $116.9 million in net cash proceeds from the sale of the 2018 Notes in September 2018, will enable us to fund our operating expenses and capital expenditure requirements through at least the next 36 months from the date of this offering. To date, we have not had any products approved for sale and have not generated any product sales. We do not expect to generate any revenues from product sales unless and 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. 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. As a result, 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 potentially 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. Any failure to raise capital as and when needed could have a negative impact on our financial condition and on our ability to pursue our business plans and strategies. If we are unable to raise capital, we will need to delay, reduce or terminate planned activities to reduce costs.

We have invested resources to optimize our manufacturing process, including the development of improved analytical methods. We plan to continue to invest in process science, product characterization and manufacturing to continuously improve our production and supply chain capabilities over time. Our product candidates are designed and manufactured via a platform comprised of defined unit operations and technologies. The process is gradually developed from small to larger scales, incorporating compliant procedures to create cGMP conditions. Notwithstanding this platform based model, each product is unique and for each new product candidate, a developmental phase is necessary to individually customize each engineering step and to create a robust

procedure that can later be implemented in a cGMP environment to ensure the production of clinical batches. This work is performed in our research and development environment to evaluate and assess variability in each step of the process in order to define the most reliable production conditions.

We expect to continue to rely on a third-party CMO and may rely on CMOs and other third parties for the manufacturing and processing of our product candidates in the future. We believe the use of contract manufacturing and testing for the first clinical product candidates is cost-effective and has allowed us to rapidly prepare for clinical trials in accordance with our development plans. We expect third-party manufacturers will be capable of providing and processing sufficient quantities of our product candidates to meet anticipated clinical trial demands. In addition, we plan to secure and build our own manufacturing facility for clinical and commercial supply and are currently searching for a suitable location for such facility. We plan to create a robust supply chain with redundant sources of supply comprised of both internal and external infrastructure.

Our Research Development and License Agreements

Asset Contribution Agreement with Pfizer

In April 2018, we entered into an Asset Contribution Agreement (Pfizer Agreement) with Pfizer pursuant to which we acquired certain assets and assumed certain liabilities from Pfizer, including the Cellectis Agreement and the Servier Agreement described below and other intellectual property for the development and administration of CAR T cells for the treatment of cancer. See Notes 5 and 6 to our financial statements included elsewhere in this prospectus for further description of the Pfizer Agreement.

Research Collaboration and License Agreement with Cellectis

In June 2014, Pfizer entered into a Research Collaboration and License Agreement (Cellectis Agreement) with Cellectis. In April 2018, Pfizer assigned the agreement to us pursuant to the Pfizer Agreement. See Note 6 to our financial statements included elsewhere in this prospectus for further description of the Cellectis Agreement.

Exclusive License and Collaboration Agreement With Servier

In October 2015, Pfizer entered into an Exclusive License and Collaboration Agreement (Servier Agreement) with Servier to develop, manufacture and commercialize certain allogeneic CD19 CAR products, including UCART19, in the United States with the option to obtain the rights over additional products, including other allogenic anti-CD19 CAR product candidates. In April 2018, Pfizer assigned the agreement to us pursuant to the Pfizer Agreement. See Note 6 to our financial statements included elsewhere in this prospectus for further description of the Servier Agreement.

Transition Services Agreement

In connection with the closing of the Pfizer asset purchase transaction, we entered into the TSA with Pfizer in April 2018, pursuant to which Pfizer provides us with certain (i) research and development services, including services relating to testing, studies, and clinical trials, project management services, laboratory equipment and operations services, animal care services, data storage services and regulatory strategy services, and (ii) general and administrative services, including business technology services, compliance services, finance/accounting services, and procurement, manufacturing and supply chain services, with respect to the assets that we purchased from Pfizer. Under the TSA, Pfizer also provides us with certain facilities and facility management services. The services are provided by certain employees of Pfizer as independent contractors of Allogene. We believe that it is helpful for Pfizer to provide such services to us under the TSA to help facilitate the efficient operation of our business after the asset purchase and as we transition to becoming a stand-alone public company.

Pfizer began providing the services in May 2018 and will continue providing the services for a period of time ranging from one to 12 months, depending on the service, which we refer to as the Service Period, with the exception of the services relating to the facilities, which Pfizer shall provide for 18 months. The services and employees for each service may be amended from time to time by the parties. Under the TSA, we estimate we will pay Pfizer an aggregate of $11.2 million in 2018 and $2.6 million in 2019.

The TSA provides that Pfizer will indemnify us for damages that result from Pfizer's gross negligence, willful misconduct or material breach of the TSA and that we will indemnify Pfizer for damages that arise from the provision of the services, unless such damages result from Pfizer's gross negligence, willful misconduct or material breach. We are also required to indemnify Pfizer for damages that arise from our material breach of the TSA.

The term of the agreement began in April 2018 and ends on the earlier to occur of the last date that Pfizer is required to provide the services or the termination of the TSA in accordance with the agreement. Either party may terminate the agreement upon 60 days' prior written notice in the event of the other party's uncured material breach. Pfizer may terminate the TSA upon 10 days' prior written notice in the event of for our non-payment, if left uncured. We may terminate our use of the facilities with 60 days' written notice.

Components of Operating Results

Operating Expenses

Research and Development

To date, our research and development expenses have related primarily to discovery efforts and preclinical and clinical development of our product candidates. Research and development expenses for the six months ended June 30, 2018 primarily consist of acquired in-process research and development recognized as a non-cash expense related to the Asset Contribution Agreement with Pfizer. Research and development expenses consist primarily of costs incurred for the development of our most advanced product candidate, UCART19, which include:

- expenses incurred under agreements with our collaboration partners and third-party contract organizations, investigative clinical trial sites that conduct research and development activities on our behalf, and consultants;
- costs related to production of clinical materials, including fees paid to contract manufacturers;
- laboratory and vendor expenses related to the execution of preclinical and clinical trials;
- employee-related expenses, which include salaries, benefits and stock-based compensation; and
- facilities and other expenses, which include expenses for rent and maintenance of facilities, depreciation and amortization expense and other supplies.

Other significant research and development costs include costs relating to facilities and overhead costs, including payments to Pfizer under the TSA for use of their facilities. We expense all research and development costs in the periods in which they are incurred. We accrue for costs incurred as the services are being provided by monitoring the status of the project and the invoices received from our external service providers. We adjust our accrual as actual costs become known. Where contingent milestone payments are due to third parties under research and development arrangements or license agreements, the milestone payment obligations are expensed when the milestone results are achieved.

We are required to reimburse Servier for 60% of the costs associated with the development of UCART19, including for the CALM and PALL clinical trials. We accrue for costs incurred by monitoring the status of the CALM and PALL clinical trials and the invoices received from Servier. We adjust our accrual as actual costs become known.

Research and development activities are central to our business model. Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. We expect our research and development expenses to increase over the next several years as our UCART19, ALLO-501 and ALLO-715 clinical programs progress and as we seek to initiate clinical trials of additional product candidates. We also expect to incur increased research and development expenses as we selectively identify and develop additional product candidates. However, it is difficult to determine with certainty the duration and completion costs of our current or future preclinical programs and clinical trials of our product candidates.

The duration, costs and timing of clinical trials and development of our product candidates will depend on a variety of factors that include, but are not limited to, the following:

- per patient trial costs;
- the number of patients that participate in the trials;
- 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 doses that patients receive;
- the drop-out or discontinuation rates of patients;
- potential additional safety monitoring or other studies requested by regulatory agencies;
- the duration of patient follow-up; and
- the efficacy and safety profile of the product candidates.

In the case of UCART19, we are also dependent on Servier's ability to manage the CALM and PALL clinical trials. In addition, the probability of success for each product candidate will depend on numerous factors, including competition, manufacturing capability and commercial viability. We will determine which programs to pursue and how much to fund each program in response to the scientific and clinical success of each product candidate, as well as an assessment of each product candidate's commercial potential.

Because our product candidates are still in clinical and preclinical development and the outcome of these efforts is uncertain, we cannot estimate the actual amounts necessary to successfully complete the development and commercialization of product candidates or whether, or when, we may achieve profitability. Due to the early stage nature of our programs, we do not track costs on a project by project basis. As our programs become more advanced, we intend to we intend to track the external and internal cost of each program.

General and Administrative

General and administrative expenses consist primarily of salaries and other staff-related costs, including stock-based compensation for options granted and modification of shares of common stock issued to our founders to include vesting conditions, for personnel in executive, commercial, finance, accounting, legal, investor relations, facilities, business development and human resources functions. Other significant costs include costs relating to facilities and overhead costs, including payments to Pfizer under the TSA for use of their facilities, legal fees relating to corporate and patent matters, insurance, investor relations costs, fees for accounting and consulting services, and other general and administrative costs. General and administrative costs are expensed as incurred, and we accrue for services provided by third parties related to the above expenses by monitoring the status of services provided and receiving estimates from our service providers, and adjusting our accruals as actual costs become known.

We expect our general and administrative expenses to increase over the next several years to support our continued research and development activities, manufacturing activities, potential commercialization of our product candidates and the increased costs of operating as a public company. These increases are anticipated to include increased costs related to the hiring of additional personnel, developing commercial infrastructure, fees to outside consultants, lawyers and accountants, and increased costs associated with being a public company such as expenses related to services associated with maintaining compliance with Nasdaq listing rules and SEC requirements, insurance and investor relations costs.

Interest and Other Income, Net

Interest and other income, net consists of interest earned on our cash equivalents during the period.

Results of Operations

Period from November 30, 2017 (Inception) to December 31, 2017

The following sets forth our results of operations for the period from November 30, 2017 (inception) to December 31, 2017 (in thousands):

	Period From November 30, 2017 (Inception) to December 31, 2017
Operating expenses:	
Research and development	$ —
General and administrative	2
Total operating expenses	2
Loss from operations	(2)
Interest and other income, net	—
Net and comprehensive loss	$ (2)

From the period from November 30, 2017 (inception) to December 31, 2017, we incurred $2,000 in start-up costs to establish our company. Principal operations commenced in April 2018 when we acquired certain assets from Pfizer and completed a Series A and A-1 preferred stock financing.

Six Months Ended June 30, 2018

The following sets forth our results of operations for the six months ended June 30, 2018 (in thousands):

	Six Months Ended June 30, 2018 (Unaudited)
Operating expenses:	
Research and development	$ 122,486
General and administrative	15,123
Total operating expenses	137,609
Loss from operations	(137,609)
Interest and other income, net	110
Net and comprehensive loss	$ (137,499)

Research and Development Expenses

Research and development expenses were $122.5 million for the six months ended June 30, 2018. Research and development consisted primarily of a non-cash charge of $109.4 million associated with acquired in-process research and development assets with no alternative future use purchased from Pfizer, $4.7 million in external costs for payments to our research and development partners related to product candidate development activities and manufacturing support for UCART19 clinical trials, $2.3 million for personnel-related costs, and $1.9 million for expenses incurred under the TSA with Pfizer.

General and Administrative Expenses

General and administrative expenses were $15.1 million for the six months ended June 30, 2018. General and administrative expenses consisted primarily of $8.0 million in stock-based compensation expense resulting from the modification of our founders' shares of common stock to include vesting conditions, $3.6 million in start-up costs, including legal fees and professional consulting service fees, related to the establishment of our company, $1.3 million for personnel-related costs and $1.3 million for expenses incurred under the TSA with Pfizer.

Interest and Other Income, Net

Interest and other income, net was $0.1 million for the six months ended June 30, 2018 and consisted of interest earned on our cash equivalents during the period.

Liquidity and Capital Resources

Since our inception through June 30, 2018, our operations have been financed primarily by net proceeds of $149.3 million from the sale of our convertible preferred stock. As of June 30, 2018, we had $143.9 million in cash and cash equivalents. In July and August 2018, we received $150.0 million in cash proceeds from our convertible preferred stockholders related to subscriptions receivable. In September 2018, we received $116.9 million in net cash proceeds from the sale of the 2018 Notes. Cash in excess of immediate requirements is invested in accordance with our investment policy, primarily with a view to liquidity and capital preservation.

We have incurred losses since our inception in November 2017 and, as of June 30, 2018, we had an accumulated deficit of $137.5 million. Our primary use of cash is to fund operating expenses, which consist primarily of research and development expenditures related to UCART19, ALLO-501 and ALLO-715, and other research efforts, and to a lesser extent, general and administrative expenditures. Cash used to fund operating expenses is impacted by the timing of when we pay these expenses, as reflected in the change in our outstanding accounts payable and accrued expenses.

Our product candidates may never achieve commercialization and we anticipate that we will continue to incur losses for the foreseeable future. We expect that our research and development expenses, general and administrative expenses, and capital expenditures will continue to increase. As a result, until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through a combination of equity offerings, debt financings or other capital sources, including potentially collaborations, licenses and other similar arrangements. Our primary uses of capital are, and we expect will continue to be, compensation and related expenses, third-party clinical research and development services, costs relating to the build-out of our headquarters and manufacturing facility, license payments or milestone obligations that may arise, laboratory and related supplies, clinical costs, manufacturing costs, legal and other regulatory expenses and general overhead costs.

Based upon our current operating plan, we believe that the net proceeds from this offering, together with our existing cash and cash equivalents as of June 30, 2018 and the receipt of $150.0 million in cash proceeds from

our convertible preferred stockholders related to subscription receivables in July and August 2018 and $116.9 million in net cash proceeds from the sale of the 2018 Notes in September 2018, will enable us to fund our operating expenses and capital expenditure requirements through at least the next 36 months from the date of this offering. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we currently expect. We will continue to require additional financing to advance our current product candidates through clinical development, to develop, acquire or in-license other potential product candidates and to fund operations for the foreseeable future. We will continue to seek funds through equity offerings, debt financings or other capital sources, including potentially 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. If we do raise additional capital through public or private equity offerings, the ownership interest of our existing stockholders, including investors in this offering, will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect our stockholders' rights. If we raise additional capital through debt financing, we may be subject to covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. Any failure to raise capital as and when needed could have a negative impact on our financial condition and on our ability to pursue our business plans and strategies. If we are unable to raise capital, we will need to delay, reduce or terminate planned activities to reduce costs.

Because of the numerous risks and uncertainties associated with research, development and commercialization of pharmaceutical products, we are unable to estimate the exact amount of our operating capital requirements. Our future funding requirements will depend on many factors, including, but not limited to:

- the scope, progress, results and costs of researching and developing our lead product candidates or any future product candidates, and conducting nonclinical studies and clinical trials;
- the timing of, and the costs involved in, obtaining regulatory approvals or clearances for our lead product candidates or any future product candidates;
- the number and characteristics of any additional product candidates we develop or acquire;
- the timing of any cash milestone payments if we successfully achieve certain predetermined milestones;
- the cost of manufacturing our lead product candidates or any future product candidates and any products we successfully commercialize, including costs associated with building-out our manufacturing capabilities;
- our ability to establish and maintain strategic collaborations, licensing or other arrangements and the financial terms of any such agreements that we may enter into;
- the expenses needed to attract and retain skilled personnel;
- the costs associated with being a public company; and
- the timing, receipt and amount of sales of any future approved or cleared products, if any.

Further, our operating plans may change, and we may need additional funds to meet operational needs and capital requirements for clinical trials and other research and development activities. We currently have no credit facility or committed sources of capital. Because of the numerous risks and uncertainties associated with the development and commercialization of our product candidates, we are unable to estimate the amounts of increased capital outlays and operating expenditures associated with our current and anticipated product development programs.

Cash Flows

The following table summarizes our cash flows for the periods indicated (in thousands):

	Period from November 30, 2017 (Inception) to December 31, 2017	Six Months Ended June 30, 2018 (Unaudited)
Net cash provided by (used in):		
Operating activities	$ —	$ (6,042)
Investing activities	—	(2,634)
Financing activities	—	152,603
Net increase in cash and cash equivalents	$ —	$ 143,927

Operating Activities

During the six months ended June 30, 2018, cash used in operating activities of $6.0 million was attributable to a net loss of $137.5 million, partially offset by non-cash charges of $117.9 million and a net change of $13.5 million in our net operating assets and liabilities. The non-cash charge consisted primarily of acquired in-process research and development expense resulting from the asset acquisition from Pfizer of $109.4 million and $8.1 million of stock-based compensation. The change in operating assets and liabilities was primarily due to a $12.6 million increase in accrued and other liabilities resulting from the timing of payments made to our collaboration partners and Pfizer and accrued professional and consulting services, a $1.3 million increase in accounts payable driven by increased professional fees and a $0.3 million increase in prepaid expenses and other current liabilities.

Investing Activities

During the six months ended June 30, 2018, cash used by investing activities of $2.6 million was related to cash transaction costs incurred in the asset acquisition from Pfizer of $2.1 million and the purchase of property and equipment of $0.5 million.

Financing Activities

During the six months ended June 30, 2018, cash provided by financing activities of $152.6 million was related to net proceeds of $149.3 million from the issuance of our Series A and A-1 convertible preferred stock and $3.3 million from the issuance of common stock in connection with stock option exercises.

Contractual Obligations and Commitments

We did not have any contractual obligations, including debt obligations, capital lease obligations, operating lease obligations, purchase obligations or other long-term liabilities, as of December 31, 2017 or June 30, 2018.

In August 2018, we entered into an operating lease agreement for our new headquarters in South San Francisco. The operating lease term is expected to commence on March 1, 2019 and expires ten years from the commencement date. The initial annual base rent is approximately $4.1 million, and such amount will increase by 3.5% annually on each anniversary of the commencement date. Payments associated with this operating lease agreement will result in operating lease obligations of $3.4 million in 2019, $4.2 million in 2020, $4.4 million in 2021, $4.5 million in 2022, and $33.6 million through 2029.

Commitments

Our commitments primarily consist of obligations under our agreements with Pfizer, Cellectis and Servier. Under these agreements we are required to make milestone payments upon successful completion of certain regulatory and sales milestones on a target-by-target and country-by-country basis. The payment obligations under the license agreements are contingent upon future events such as our achievement of specified development, regulatory and commercial milestones and we will be required to make development milestone payments and royalty payments in connection with the sale of products developed under these agreements. As of June 30, 2018, we were unable to estimate the timing or likelihood of achieving the milestones or making future product sales. For additional information regarding our agreements, see "—Our Research Development and License Agreements" above.

Additionally, we have entered into an agreement with third-party contract manufacturers for the manufacture and processing of certain of our product candidates for clinical testing purposes, and we have entered and will enter into other contracts in the normal course of business with contract research organizations for clinical trials and other vendors for other services and products for operating purposes. These agreements generally provide for termination or cancellation, and, other than for costs already incurred.

We also have a Change in Control and Severance Plan that require the funding of specific payments, if certain events occur, such as a change of control and the termination of employment without cause.

Off-Balance Sheet Arrangements

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

Quantitative and Qualitative Disclosures about Market Risk

Interest Rate Risk

We are exposed to market risks in the ordinary course of our business. These risks primarily include interest rate sensitivities. We held cash and cash equivalents of $143.9 million as of June 30, 2018. We generally hold our cash in interest-bearing money market accounts. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. Due to the short-term maturities of our cash equivalents and the low risk profile of our investments, an immediate 100 basis point change in interest rates would not have a material effect on the fair market value of our cash equivalents.

Critical Accounting Policies and Significant Judgments and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with United States generally accepted accounting principles (U.S. GAAP). The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported expenses incurred during the reporting periods. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We believe that the accounting policies discussed below are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates.

Accrued Research and Development Costs

We accrue liabilities for estimated costs of research and development activities conducted by our collaboration partners and third-party service providers, which include the conduct of preclinical and clinical

studies, and contract manufacturing activities. We recorded the estimated costs of research and development activities based upon the estimated amount of services provided but not yet invoiced, and includes these costs in the accrued and other current liabilities on the balance sheets and within research and development expense on the statements of operations.

We accrue for these costs based on factors such as estimates of the work completed and budget provided and in accordance with agreements established with our collaboration partners and third-party service providers. We make significant judgments and estimates in determining the accrued liabilities balance in each reporting period. As actual costs become known, we adjust its accrued liabilities. We have not experienced any material differences between accrued costs and actual costs incurred since our inception.

Research and Development Expenses

We expense research and development costs as incurred. Acquired intangible assets are expensed as research and development costs if, at the time of payment, the technology is under development; is not approved by the FDA or other regulatory agencies for marketing; has not reached technical feasibility; or otherwise has no foreseeable alternative future use.

Research and development expenses also include costs incurred for internal and sponsored and collaborative research and development activities. Research and development costs consist of salaries and benefits, including associated stock-based compensation, and laboratory supplies and facility costs, as well as fees paid to other entities that conduct certain research and development activities on our behalf. Costs associated with co-development activities performed under the various license and collaboration agreements are included in research and development expenses.

Stock-Based Compensation

We recognize compensation costs related to stock-based awards granted to employees and directors, including stock options, based on the estimated fair value of the awards on the date of grant. We estimate the grant date fair value, and the resulting stock-based compensation, using the Black-Scholes option-pricing model. The grant date fair value of the stock-based awards is generally recognized on a straight-line basis over the requisite service period, which is generally the vesting period of the respective awards.

The Black-Scholes option-pricing model requires the use of subjective assumptions to determine the fair value of stock-based awards. These assumptions include:

- *Fair Value of Common Stock*—Historically, for all periods prior to this initial public offering, the fair value of the shares of common stock underlying our share-based awards was estimated on each grant date by our board of directors. In order to determine the fair value of our common stock underlying option grants, our board of directors considered, among other things, valuations of our common stock prepared by an unrelated third-party valuation firm in accordance with the guidance provided by the American Institute of Certified Public Accountants Practice Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*.
- *Expected Term*—The expected term represents the period that stock-based awards are expected to be outstanding. The expected term for option grants is determined using the simplified method. The simplified method deems the expected term to be the midpoint between the vesting date and the contractual life of the stock-based awards.
- *Expected Volatility*—Since we have been a privately held company and do not have any trading history for our common stock, the expected volatility is estimated based on the average volatility for comparable publicly traded biotechnology companies over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on their similar size, stage in the life cycle or area of specialty. We will continue to apply this process until a sufficient amount of historical information regarding the volatility of our own stock price becomes available.

- *Risk-Free Interest Rate*—The risk-free interest rate is based on the U.S. Treasury zero coupon issues in effect at the time of grant for periods corresponding with the expected term of option.
- *Expected Dividend*—We have never paid dividends on our common stock and have no plans to pay dividends on our common stock. Therefore, we used an expected dividend yield of zero.

For the six months ended June 30, 2018, stock-based compensation related to stock options was $53,000. As of June 30, 2018, we had $13.8 million of total unrecognized stock-based compensation which we expect to recognize over a weighted-average period of 3.7 years. In addition, we recorded $8.0 million in stock-based compensation as a result of the modification of our founders' shares of common stock to include vesting conditions.

Subsequent to June 30, 2018, we granted stock options to purchase up to an aggregate of 2,347,275 shares of our common stock to our employees and consultants, at a weighted-average exercise price of $6.87 per share.

For our valuations performed prior to June 30, 2018, we used the OPM Backsolve method. In an option pricing method (OPM) framework, the backsolve method for inferring the equity value implied by a recent financing transaction involves making assumptions for the expected time to liquidity, volatility and risk-free rate and then solving for the value of equity such that value for the most recent financing equals the amount paid. This method was selected as management concluded that the contemporaneous financing transaction was an arm's-length transaction. Furthermore, as of the valuation date prior to June 30, 2018, we were at an early stage of development and future liquidity events were difficult to forecast.

For our valuation performed subsequent to June 30, 2018, we used a hybrid method of the OPM and the Probability-Weighted Expected Return Method (PWERM). PWERM considers various potential liquidity outcomes. Our approach included the use of different timing of initial public offering scenarios and a scenario assuming continued operation as a private entity. Under the hybrid OPM and PWERM method, the per share value calculated under the OPM and PWERM are weighted based on expected exit outcomes and the quality of the information specific to each allocation methodology to arrive at a final estimated fair value per share value of the common stock before a discount for lack of marketability is applied.

Given the absence of a public trading market for our common stock, our board of directors exercised their judgment and considered a number of objective and subjective factors to determine the best estimate of the fair value of our common stock, including contemporaneous valuations performed by an independent third party, our stage of development, important developments in our operations, the prices at which we sold shares of our preferred stock, the rights, preferences and privileges of our preferred stock relative to those of our common stock, actual operating results and financial performance, the conditions in the biotechnology industry and the economy in general, the stock price performance and volatility of comparable public companies, and the lack of liquidity of our common stock, among other factors. After the closing of this offering, our board of directors will determine the fair value of each share of underlying common stock based on the closing price of our common stock as reported on the date of the grant. Our board of directors intended all options granted to be exercisable at a price per share not less than the per share fair value of our common stock underlying those options on the grant date.

Based upon the initial public offering price of $18.00 per share, the aggregate intrinsic value of options outstanding as of June 30, 2018 was $115.5 million, all of which related to unvested options.

Emerging Growth Company Status

We are an emerging growth company, as defined in the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We have elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an emerging growth company or

(ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

Recently Adopted Accounting Pronouncements

In March 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update No. 2016-09, *Stock Compensation—Improvements to Employee Share-Based Payment Accounting* (ASU 2016-09). ASU 2016-09 was issued to simplify accounting guidance by identifying, evaluating, and improving areas for which cost and complexity can be reduced while maintaining or improving the usefulness of the information provided to users of financial statements. The areas affected by ASU 2016-09 include accounting for income taxes, classification of excess tax benefits on the statement of cash flows, minimum statutory tax withholding requirements, and classification of employee taxes paid on the statement of cash flows when an employer withholds shares for tax-withholding purposes. In addition, under this guidance, an entity can make an accounting policy election to either estimate the number of awards that are expected to vest or account for forfeitures when they occur. We adopted this guidance beginning with the period from November 30, 2017 (inception) to December 31, 2017, and elected to account for forfeitures as they occur.

In January 2017, the FASB issued Accounting Standards Update No. 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business* (ASU 2017-01). ASU 2017-01 clarifies the framework for determining whether an integrated set of assets and activities meets the definition of a business. The revised framework establishes a screen for determining whether an integrated set of assets and activities is a business and narrows the definition of a business. The screen requires that when substantially all of the fair value of the gross assets acquired (or disposed of) is concentrated in a single identifiable asset or a group of similar identifiable assets, the set is not a business. This screen reduces the number of transactions that need to be further evaluated. This new accounting guidance is effective for public or private companies for fiscal years beginning after December 15, 2017, including interim periods within those fiscal years. Early adoption is permitted. The new accounting guidance should be applied prospectively on or after the effective date. We adopted this guidance on January 1, 2018.

In June 2018, the FASB issued Accounting Standards Update No. 2018-07, *Improvements to Nonemployee Share-Based Payment Accounting* (ASU 2018-07). ASU 2018-07 simplifies the accounting for share-based payments to nonemployees by aligning it with the accounting for share-based payments to employees, with certain exceptions. Some of the areas of simplification apply only to nonpublic entities. For all entities, the amendments are effective for annual periods beginning after December 15, 2019, and interim periods within annual periods beginning after December 15, 2020. Early adoption is permitted for any entity in any interim or annual period for which financial statements haven’t been issued or made available for issuance, but not before an entity adopts ASC 606. We early adopted this guidance on January 1, 2018.

Recent Accounting Pronouncements

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, *Leases* (ASU 2016-02) provides accounting guidance for both lessee and lessor accounting models. The principle of ASU 2016-02 is that a lessee should recognize the assets and liabilities that arise from leases. Lessees will need to recognize a right-of-use asset and a lease liability for virtually all of their leases (other than leases that meet the definition of a short-term lease). The liability will be equal to the present value of lease payments. The asset will be based on the liability. For income statement purposes, ASU 2016-02 requires leases to be classified as either operating or finance. Operating leases will result in straight-line expense while finance leases will result in a front-loaded expense pattern. ASU 2016-02 is effective for public companies for fiscal years beginning after December 15, 2018. For all other entities, this standard is effective for annual reporting periods beginning after December 15, 2019, and interim periods within annual periods beginning after December 15, 2020. Early adoption is permitted. The new standard must be adopted using a modified-retrospective transition and provides for certain practical expedients. We are currently evaluating the effects of the adoption of this ASU on our financial statements.

BUSINESS

Overview

We are a clinical stage immuno-oncology company pioneering the development and commercialization of genetically engineered allogeneic T cell therapies for the treatment of cancer. We are developing a pipeline of off-the-shelf T cell product candidates that are designed to target and kill cancer cells. Our engineered T cells are allogeneic, meaning they are derived from healthy donors for intended use in any patient, rather than from an individual patient for that patient's use, as in the case of autologous T cells. We believe this key difference will enable us to deliver readily available treatments faster, more reliably, at greater scale, and to more patients.

In collaboration with Servier, we are developing UCART19, a chimeric antigen receptor (CAR) T cell product candidate targeting CD19. UCART19 is being studied in clinical trials in patients with relapsed or refractory (R/R) B-cell precursor acute lymphoblastic leukemia (ALL), and we expect UCART19 to be advanced to potential registrational trials in the second half of 2019. We also plan to submit an investigational new drug application (IND) in the first half of 2019 for our second allogeneic anti-CD19 CAR T cell product candidate, ALLO-501, for the treatment of R/R non-Hodgkin lymphoma (NHL). In addition, we have a deep pipeline of allogeneic CAR T cell product candidates targeting multiple promising antigens in a host of hematological malignancies and solid tumors. For example, we plan to submit an IND in 2019 for an allogeneic CAR T cell product candidate targeting B-cell maturation antigen (BCMA) for the treatment of multiple myeloma. We believe our management team's experience in immuno-oncology and specifically in CAR T cell therapy will help drive the rapid development and, if approved, the commercialization of these potentially curative therapies for patients with aggressive cancer.

CAR T cell therapy, a form of cancer immunotherapy, has recently emerged as a revolutionary and potentially curative therapy for patients with hematologic cancers, including refractory cancers. In 2017, two autologous anti-CD19 CAR T cell therapies, Kymriah, developed by Novartis International AG (Novartis), and Yescarta, developed by Kite Pharma, Inc. (Kite), were approved by the U.S. Food and Drug Administration (FDA) for the treatment of R/R B-cell precursor ALL (Kymriah) and R/R large B-cell lymphoma (Yescarta). Autologous CAR T cell therapies are manufactured individually for the patient's use by modifying the patient's own T cells outside the body, causing the T cells to express CARs. The entire manufacturing process is dependent on the viability of each patient's T cells and takes approximately two to four weeks. As seen in the registrational trials for Kymriah and Yescarta, up to 31% of intended patients ultimately did not receive treatment primarily due to interval complications from the underlying disease during manufacturing or manufacturing failures.

Our allogeneic approach involves engineering healthy donor T cells, which we believe will allow for the creation of an inventory of off-the-shelf products that can be delivered to a larger portion of eligible patients throughout the world. These potential benefits led our Executive Chairman, Arie Belldegrun, M.D., FACS, who was previously the Chairman and Chief Executive Officer at Kite, and our President and Chief Executive Officer, David Chang, M.D., Ph.D., previously Chief Medical Officer and Executive Vice President of Research and Development at Kite, to found our company with the driving purpose of accelerating the development of allogeneic CAR T cell therapies. Dr. Belldegrun and Dr. Chang led the development of Yescarta at Kite, achieving FDA approval in just 34 months after the submission of an IND. Shortly before Yescarta approval, in October 2017, Gilead Sciences, Inc. (Gilead) acquired Kite for $11.9 billion.

Our Pipeline

We are currently developing a pipeline of multiple allogeneic CAR T cell product candidates utilizing protein engineering, gene editing, gene insertion and advanced proprietary T cell manufacturing technologies. Our most advanced product candidate, UCART19, is an engineered allogeneic CAR T cell therapy that targets

CD19, a protein expressed on the cell surface of B cells and a validated target for B cell driven hematological malignancies. We are also developing engineered allogeneic CAR T cell product candidates for multiple myeloma, other blood cancers and solid tumors. Our pipeline is represented in the diagram below.

1 *May not be required if Phase 2 is a registrational clinical trial.*
2 *Servier holds ex-US commercial rights.*
3 *To enable expansion and persistence of allogeneic CAR T product candidates.*

Our lead product candidates include:

- *UCART19.* In 2016, our collaboration partner, Servier, initiated two clinical trials of UCART19: the CALM trial and the PALL trial. The CALM trial is a Phase 1, open-label, dose-escalation clinical trial in adult patients with R/R ALL. The PALL trial is a Phase 1, open-label, clinical trial in pediatric patients with R/R ALL. In June 2018, interim results from 18 patients in the CALM and PALL clinical trials were presented at the 23rd European Hematology Association Annual Congress. As of April 2018, 13 out of 16 evaluable patients, or 81%, achieved a complete response (CR) and 12 of those patients, or 92%, achieved a minimum residual disease negative CR (MRD- CR). The most common adverse events were related to cytokine release syndrome (CRS) and were generally manageable. Two mild graft-versus-host disease (GvHD) cases in the skin were observed and resolved. We expect UCART19 to be advanced to potential registrational trials in the second half of 2019.
- *ALLO-501.* We plan to submit an IND in the first half of 2019 for our second allogeneic anti-CD19 CAR T cell product candidate, ALLO-501, for the treatment of patients with R/R NHL. The manufacturing process for ALLO-501 is different than the one employed for UCART19, but the two product candidates are identical in molecular design.
- *ALLO-715.* We plan to submit an IND in 2019 for an allogeneic CAR T cell product candidate, ALLO-715, targeting BCMA for the treatment of patients with R/R multiple myeloma. Several clinical studies of third-party autologous CAR T cell therapies targeting BCMA have produced promising results in this indication.
- *ALLO-647.* We are developing an anti-CD52 monoclonal antibody, ALLO-647, which is designed to be used prior to infusing our other product candidates as part of the lymphodepletion regimen. We believe ALLO-647 can reduce the likelihood of a patient's immune system rejecting the engineered allogeneic T cells, and may create a window of persistence during which our engineered allogeneic T cells can actively target and destroy cancer cells.

Our Approach

Our allogeneic T cell development strategy has four key pillars: (1) developing product candidates to minimize the risk of GvHD, a condition where allogeneic T cells can recognize the patient's normal tissue as foreign and cause damage, (2) creating a window of persistence that may enable allogeneic T cells to expand in patients, (3) building a leading manufacturing platform and (4) leveraging next generation technologies to improve the functionality of allogeneic CAR T cells. We use Cellectis's TALEN gene-editing technology with the goal of limiting the risk of GvHD by engineering T cells to lack functional T cell receptors (TCRs) that are no longer capable of recognizing a patient's normal tissue as foreign. With the goal of enhancing the expansion and persistence of our engineered allogeneic T cells, we use TALEN to inactivate the CD52 gene in donor T cells and an anti-CD52 monoclonal antibody to deplete CD52 expressing T cells in patients while sparing the therapeutic allogeneic T cells. We believe this enables a window of persistence for the infused allogeneic T cells to actively target and destroy cancer cells. We are also developing ALLO-647, our own anti-CD52 monoclonal antibody. Our off-the-shelf approach is dependent on state-of-the-art manufacturing processes, and we are building a technical operations organization with fully integrated in-house expertise in clinical and commercial engineered T cell manufacturing. Finally, we plan to leverage next generation technologies to develop more potent allogeneic T cell products candidates that can potentially be used at a lower cell dose, thereby allowing more efficient manufacturing of the allogeneic T cells. We believe next generation technologies will also allow us to develop allogeneic T cell therapies for the treatment of solid tumors, which to date have been difficult to treat because of the lack of validated targets and tumor microenvironments that can impair the activity of T cells.

Our History and Team

We believe we have established a leadership position in allogeneic T cell therapy. In April 2018, we acquired certain assets from Pfizer Inc. (Pfizer), including strategic license and collaboration agreements and other intellectual property related to the development and administration of allogeneic CAR T cells for the treatment of cancer. We have an exclusive collaboration with Servier to develop and commercialize UCART19 and ALLO-501, and we hold the commercial rights to these product candidates in the United States. Under the Servier Agreement, we also have an exclusive option to obtain the same rights to additional product candidates targeting one additional cancer antigen. We also have an exclusive worldwide license from Cellectis to its TALEN gene-editing technology for the development of allogeneic T cell product candidates directed against 15 different cancer antigens. Our collaboration with Servier gives us access to TALEN gene-editing technology for all product candidates under the Servier Agreement. In connection with the Pfizer asset acquisition, we hired 39 employees from Pfizer, who are primarily research and technical operation employees and were leading the research and development of our product candidates and next generation gene engineering and cell engineering technologies at Pfizer.

In April 2018, we initiated a $300.0 million Series A and A-1 preferred stock financing, with the first $150.0 million received in April and the second $150.0 million received in July and August, with investments from BellCo Capital, Gilead, Pfizer, Regents of the University of California, funds affiliated with TPG Global, LLC, partners of Two River, and Vida Ventures, LLC. In September 2018, we sold and issued $120.2 million aggregate principal amount of convertible promissory notes (2018 Notes). The 2018 Notes do not accrue interest and will automatically settle into shares of our common stock in connection with the closing of this offering at a settlement price equal to 85% of the initial public offering price per share.

Our world-class management team has significant experience in immuno-oncology and in progressing products from early stage research to clinical trials, and ultimately to regulatory approval and commercialization. In particular, Dr. Belldegrun's experience in T cell therapy dates back to his time at the National Cancer Institute as a research fellow in surgical oncology and immunotherapy with Steven Rosenberg, M.D., Ph.D, a recognized pioneer in immuno-oncology. Our President and Chief Executive Officer, Dr. Chang, served as Executive Vice President of Kite and held senior leadership roles at Amgen, Inc. (Amgen). Moreover, both Dr. Belldegrun and Dr. Chang led the development and approval of Yescarta at Kite. Additionally, our Chief Technical Officer,

Alison Moore, Ph.D., was previously Senior Vice President, Process Development at Amgen, where she led the development, deployment and oversight of manufacturing for approximately 80 multi-modality assets. Dr. Moore has over 25 years of experience in biotechnology, including in the immuno-oncology space leading process development of Amgen's comprehensive bi-specific T cell engager production platform.

Our Strategy

Our goal is to maintain and build upon our leadership position in allogeneic T cell therapy. We plan to rapidly develop and, if approved, commercialize allogeneic T cell products for the treatment of cancer that can be delivered faster, more reliably and at greater scale than autologous T cell therapies. We believe achieving this goal could result in allogeneic T cell therapy becoming a standard of care in cancer treatment and enable us to make potentially curative therapies more readily accessible to more patients throughout the world. Key elements of our strategy include:

- ***Capitalize on a validated target and our first mover advantage in engineered allogeneic anti-CD19 CAR T cell product candidates.*** Autologous anti-CD19 CAR T cell therapies, such as Kymriah and Yescarta, have emerged as potentially curative therapies for B-cell lymphomas and leukemias. We believe developing allogeneic CAR T cell product candidates targeting CD19, such as UCART19 and ALLO-501, is the next frontier in delivering potentially curative therapies against B-cell lymphomas and leukemias, including ALL and NHL. We plan to support Servier in advancing the CALM and PALL trials in ALL and initiating potential registrational trials for UCART19 after completion of the CALM and PALL trials in the second half of 2019. We also plan to submit an IND in the first half of 2019 for ALLO-501 in NHL. We believe having the first anti-CD19 allogeneic CAR T cell product candidate in the clinic gives us a first mover advantage in efforts to obtain approval of and commercialize anti-CD19 allogeneic CAR T cell product candidates in B-cell lymphoma and leukemia indications.
- ***Expand our leadership position within hematologic indications.*** In addition to UCART19, we plan to advance our near-term pipeline against additional hematological targets where there remains a high unmet need. For example, we are developing ALLO-715, an allogeneic CAR T cell product candidate targeting BCMA. We believe BCMA is a promising target, as early results from clinical trials of third-party autologous CAR T cell therapeutic candidates targeting BCMA have been compelling. We plan to submit an IND for a clinical trial of ALLO-715 for the treatment of patients with R/R multiple myeloma in 2019. In addition to advancing UCART19, ALLO-501 and ALLO-715, we plan to develop additional allogeneic T cell product candidates targeting other antigens found on hematologic malignancies, including ALLO-819 targeting Flt3 for the treatment of acute myeloid leukemia (AML).
- ***Build state-of-the-art gene engineering and cell manufacturing capabilities.*** Manufacturing allogeneic T cell product candidates involves a series of complex and precise steps. We believe a critical component to our success will be to leverage and expand our proprietary manufacturing know-how, expertise and capacity. Accordingly, we plan to build our own manufacturing facility. We believe establishing our own fully integrated manufacturing operations and infrastructure will allow us to improve the manufacturing process, limit our reliance on contract manufacturing organizations (CMOs) and more rapidly advance product candidates.
- ***Leverage next generation technologies to advance our platform and expand into solid tumor indications with high unmet need.*** We have a broad portfolio of solid tumor targets, including CD70 for the treatment of renal cell cancer and DLL3 for the treatment of small cell lung cancer and other aggressive neuroendocrine tumors. We plan to leverage next generation technologies to make more potent allogeneic CAR T cells and improve the characteristics of our product candidates. For example, we are exploring ways to improve the functionality of our product candidates, such as modulating cytokines or chemokines to augment expansion, persistence and trafficking of allogeneic T cells. We are also exploring gene-editing technologies to allow site-specific integration of CARs, which could potentially provide more consistent product characteristics and enhanced T cell functions. In addition,

we continually survey the scientific and industry landscape for opportunities to license, partner or acquire technologies that may help us advance current or new T cell therapies for the benefit of patients.

Allogeneic T Cell Therapy

The Immune System and Cancer

White blood cells are a component of the immune system and are responsible for defending the body against infectious pathogens and other foreign material. T cells are a type of white blood cell and are involved in both sensing and killing infected or abnormal cells, including cancer cells, as well as coordinating the activation of other cells in an immune response.

T cells can be distinguished from other white blood cells by T cell receptors present on their cell surface. These receptors contribute to tumor surveillance by helping T cells recognize and destroy cancerous cells once identified. When T cells with cancer-specific receptors are absent, present in low numbers, of poor quality or rendered inactive by suppressive mechanisms employed by tumor tissue, cancer may grow and spread to various organs. In addition, standard of care treatments, such as chemotherapy regimens, can damage the patient's immune system, thereby inhibiting the ability of T cells to kill cancer.

Engineered T Cell Therapies

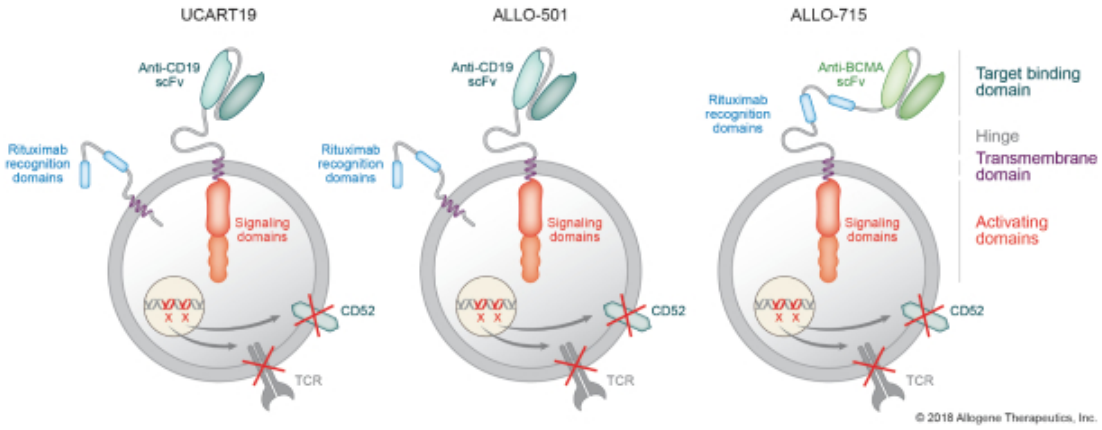
Engineered T cell therapy is a type of immunotherapy treatment whereby human T cells are removed from the body and engineered to express CARs which, when infused into a patient, recognize and destroy cancer cells in a more targeted manner.

Chimeric Antigen Receptors (CARs)

CARs are engineered molecules that, when present on the surface of a T cell, enable the T cell to recognize specific proteins or antigens that are present on the surface of other cells. The CAR in UCART19, ALLO-501 and ALLO-715 is comprised of a single chain protein that contains the following elements:

- *Target Binding Domain:* At one end of the CAR is a target binding domain that is specific to a target antigen. This domain extends out onto the surface of the engineered T cell, where it can recognize the target antigens. The target binding domain consists of a single-chain variable fragment (scFv) of an antibody comprising variable domains of heavy and light chains joined by a short linker.
- *Transmembrane Domain and Hinge:* This middle portion of the CAR links the scFv target binding domain to the activating elements inside the cell. This transmembrane domain "anchors" the CAR in the cell's membrane. In addition, the transmembrane domain may also interact with other transmembrane proteins that enhance CAR function. The hinge domain, which extends to the exterior of the cell, connects the transmembrane domain to scFv and provides structural flexibility to facilitate optimal binding of scFv to the target antigen on the cancer cell's surface.
- *Activating Domains:* The other end of transmembrane domain, inside the T cell, is connected to two contiguous domains responsible for activating the T cell when the CAR binds to the target cell. The CD3z domain delivers an essential primary signal within the T cell, and the 41BB domain delivers an additional, co-stimulatory signal. Together, these signals trigger T cell activation, resulting in proliferation of the CAR T cells and killing of the cancer cell. In addition, activated CAR T cells stimulate the local secretion of cytokines and other molecules that can recruit and activate additional immune cells to potentiate killing of the cancer cells.

The figure below shows the constructs that support our three lead programs: UCART19, ALLO-501 and ALLO-715.



Allogeneic T Cell Therapies: The Next Revolution

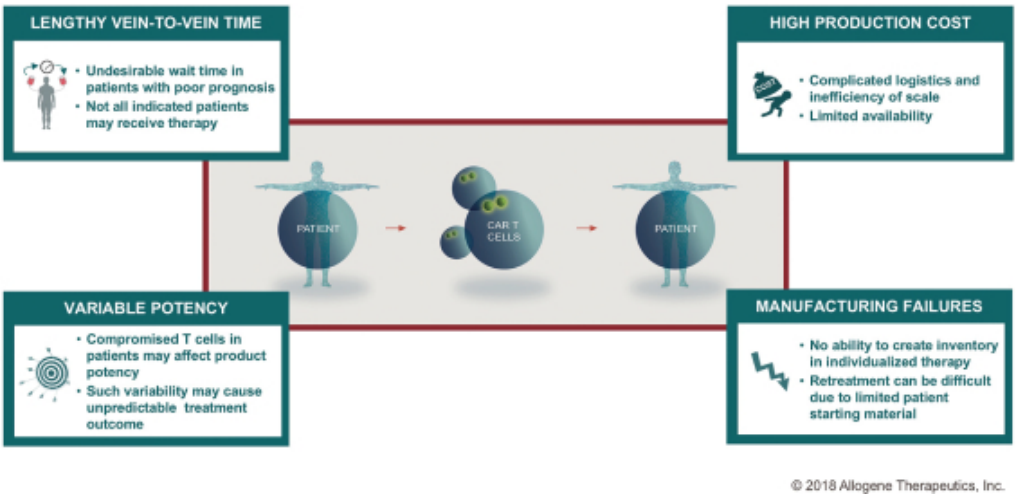
There are two primary approaches to engineered T cell therapy: autologous and allogeneic. Autologous therapies use engineered T cells derived from the individual patient, while allogeneic therapies use engineered T cells derived from healthy donor T cells.

The autologous approach, pioneered by Novartis and Kite, has been highly successful in engineering patients' immune systems to fight cancer, in particular CD19 positive cancers, resulting in significant remission rates. Autologous products are manufactured by first collecting a patient's white blood cells, through a process known as leukapheresis, separating the T cells from the patient's blood sample and proliferating the isolated T cells. After the cells have multiplied, the CAR construct is virally transduced into the T cells and the engineered T cells are then propagated until a sufficient number of cells are available for infusion into the patient. Finally, the engineered T cells are frozen, and then shipped back to the clinical center for administration to the patient. The process from leukapheresis to delivery to the clinical center takes approximately two to four weeks.

While the autologous approach has been revolutionary, demonstrating compelling efficacy in many patients, it is burdened by the following key limitations:

- ***Lengthy Vein-to-Vein Time***. Due to the individualized manufacturing process, patients must wait approximately two to four weeks to be treated with their engineered cells. As a result, in the registrational trials for Yescarta and Kymriah, up to 31% of intended patients ultimately did not receive treatment primarily due to interval complications from the underlying disease during manufacturing or manufacturing failures.
- ***Variable Potency***. In many cases, patients have T cells that have been damaged or weakened due to prior chemotherapy or hematopoietic stem-cell transplant. Compromised T cells may not proliferate well during manufacturing or may produce cells with insufficient potency that cannot be used for patient treatment, resulting in manufacturing failures, or that can show poor expansion and activity in patients. In addition, the individualized nature of autologous manufacturing, together with the variability in patients' T cells, may lead to variable potency of manufactured T cells, and this variability may cause unpredictable treatment outcomes.
- ***Manufacturing Failures***. Autologous cell manufacturing sometimes encounters production failures. This can mean that a patient never receives treatment, as additional patient starting material may not be available or the patient may no longer be eligible due to advanced disease. Furthermore, retreatment can be difficult due to a limited supply of usable patient starting material.

- ***High Production Cost***. The delivery of autologous T cell therapy is complicated due to the individualized nature of manufacturing, which allows only one patient to be treated from each manufacturing run and requires dedicated infrastructure to maintain a strict chain of custody and chain of identity of patient-by-patient material collection, manufacturing and delivery. The complex logistics add significant cost to the process and limit the ability to scale. Additionally, the collection of T cells through leukapheresis from each individual patient results in a time consuming and costly step in the autologous process. In part due to these logistics, autologous treatment is currently only available at select centers.



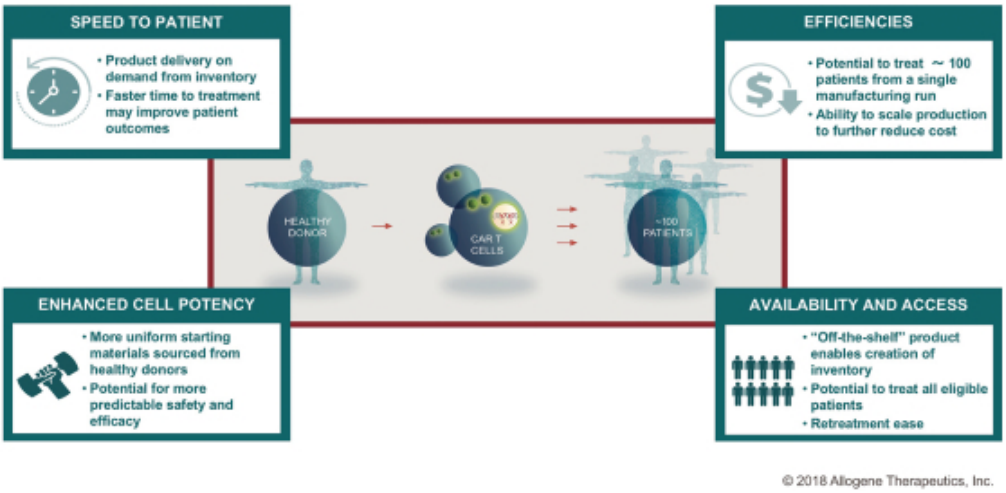
Allogeneic engineered T cells are manufactured in a similar manner as autologous, but with two key differences: (1) allogeneic T cells are derived from T cells from healthy donors and (2) allogeneic T cells must be genetically engineered to minimize the risk of GvHD and avoid being destroyed by the patient's immune system.

Our approach is designed to provide the same intended curative outcome as autologous therapy, while offering the following potential key advantages:

- ***Availability and Access***. We believe that we can scale to approximately 100 doses of an allogeneic product from T cells from one healthy donor that can be used in any eligible patients. Because our allogeneic product candidates are designed to be frozen and available off-the-shelf, they could potentially be readily shipped and administered to patients around the world. We believe having an inventory of off-the-shelf allogeneic T cell products can also facilitate delivering multiple product doses to a patient over time as well as enable treatment with multiple different engineered allogeneic T cell products directed to different cancer targets in a patient.
- ***Speed to Patient***. Many patients with aggressive cancer or rapidly progressing cancer that is refractory to existing therapies may not have multiple weeks to wait for autologous T cell treatment. Our allogeneic approach has the potential to create off-the-shelf product inventory, which could enable dosing of patients within days of prescription. This would represent a significant reduction in patient wait time, potentially allowing the treatment of patients who are too sick to wait for the autologous therapy, and could improve patient outcomes.
- ***Enhanced Cell Consistency and Potency***. Our manufacturing process produces therapies from selected, screened and tested T cells from healthy donors. These donor cells are potentially superior for engineered cellular therapy as compared to T cells from patient donors who have undergone prior

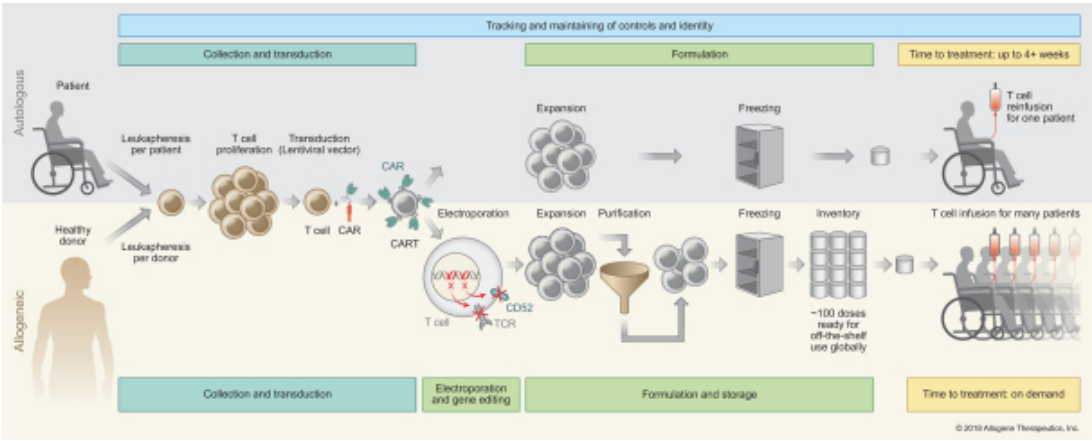
chemotherapy or hematopoietic stem-cell transplant, which can damage or weaken T cells. In addition, greater consistency of the product may yield more predictable treatment outcomes.

- ***Streamlined Manufacturing and Cost Efficiencies***. We are building an efficient and scalable manufacturing process and organization. The allogeneic approach utilizes healthy donor T cells which we believe provides enhanced scalability, reduces costs of engineered T cell therapy and reduces costs to the healthcare system as our allogeneic approach does not require us to collect and track T cells from each individual patient.



Manufacturing Allogeneic T Cells

There are similarities as well as key differences between the processes for allogeneic and autologous T cell manufacturing, as illustrated in the figure below.



The three primary steps to creating our engineered allogeneic CAR T cells are: (1) collection and transduction, (2) gene editing, and (3) purification, formulation, and storage.

Step 1. Collection and Transduction

The starting material for our allogeneic T cell products is white blood cells from a healthy donor, which are collected using a standard blood bank procedure known as leukapheresis. The collected cells are then screened, tested, and shipped to a central processing facility, where the T cells are isolated and stored frozen, creating an inventory of starting healthy donor cells for manufacturing.

The manufacturing process starts by thawing frozen healthy donor T cells, which are then stimulated to proliferate and transduced with a viral vector to integrate the CAR sequence into the T cell genome. The CAR sequence directs the expression of CAR proteins on the cell surface that allows the transduced T cells to recognize and bind to a target molecule that is present on cancer cells.

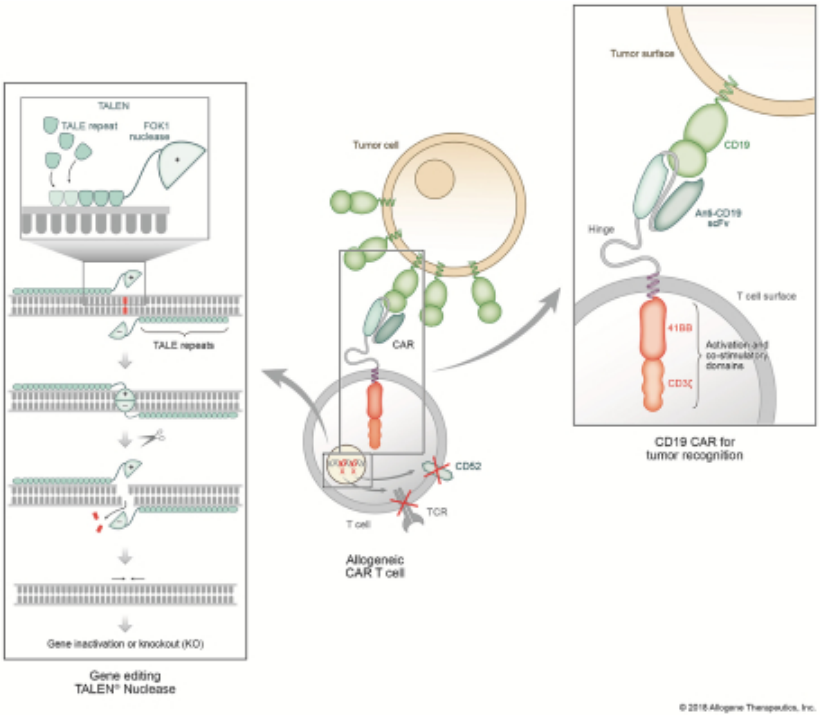
We can also concurrently add additional genes to these cells that confer specific properties. For example, we can add an off-switch by expressing proteins that can make T cells susceptible to certain drugs, such as anti-CD20 monoclonal antibodies, and enable us to deplete our engineered T cells if needed by administering such drugs to the patient.

Step 2. Gene Editing

Next, we use Cellectis's electroporation and TALEN technologies for gene editing of T cells. TALEN is a class of DNA cutting enzymes derived by fusing the DNA-cutting domain of a nuclease to the DNA-binding domains from transcription activator-like effectors (TALE). The TALE DNA-binding domain can be tailored to specifically recognize a unique DNA sequence. These fusion proteins serve as readily targetable "DNA scissors" for genome engineering applications that enable us to perform targeted genome modifications such as sequence insertion, deletion, repair and replacement in living cells.

Electroporation allows TALEN mRNA to enter into the cell, where it is translated into a nuclease that can cut DNA and inactivate specific target genes. Inactivation of genes, such as TCRα and CD52, which is performed for UCART19, ALLO-501, and ALLO-715, is intended to reduce the risk of GvHD and allow the allogeneic T cells to expand and persist in patients. We believe the inactivation of other target genes using the TALEN technology can be incorporated into future product candidates, with the goal of enhancing functions of T cells, including making them more potent at targeting solid tumors. The mRNA molecules are subsequently degraded by the cell, which means that gene editing by TALEN nuclease can only occur for a short space of time.

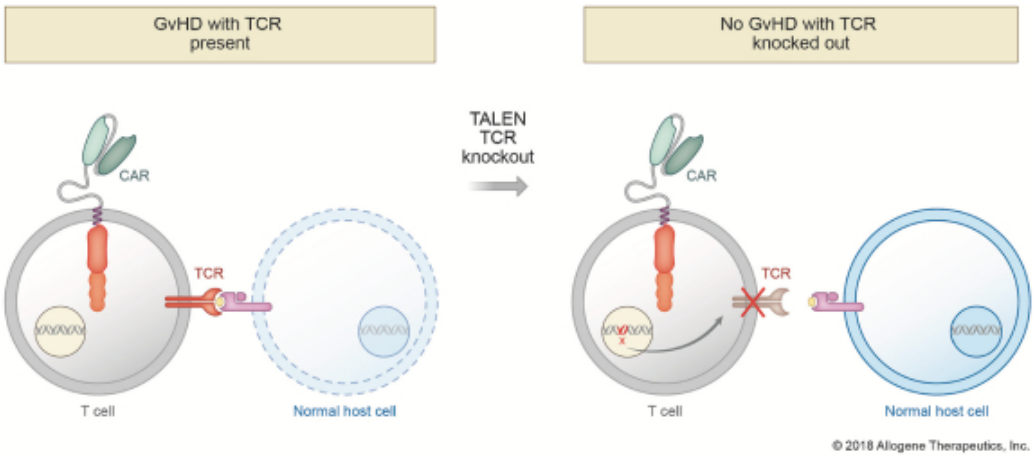
The figure below illustrates how we utilize Cellectis's TALEN and electroporation technology to inactivate the genes coding for TCRα and CD52 in our allogeneic T cells for UCART19.



We believe the key benefits of TALEN technology are:

- *Precision*. It is possible to design a TALEN that will cleave at any selected region in any gene, giving us the ability to achieve the desired genetic outcome with any gene.
- *Specificity and Selectivity*. TALEN may be designed to limit its DNA cleavage to the desired sequence and to reduce the risk of cutting elsewhere in the genome. This parameter is essential, especially for therapeutic applications, because unwanted genomic modifications potentially could lead to harmful effects for the patient. In addition, gene editing requires only a transient presence of TALEN, thus preserving the integrity and functionality of the T cell's genome.
- *Efficiency*. A large percentage of cells treated by the nuclease bear the desired genomic modification after treatment is completed. We believe TALEN's efficiency will contribute to the cost-effectiveness of a manufacturing process involving the generation of gene-edited T cells.

TCRα knockout: Non-modified allogeneic T cells bear functional TCRs and, if injected into a patient, can potentially recognize the patient's tissue as foreign and damage them. This reaction, known as GvHD, is mediated by intact TCRs on allogeneic T cells. To reduce the risk of GvHD, all of our product candidates undergo the inactivation of a gene coding for TCRα, a key component of TCRs. The engineered T cells lacking functional TCRs are no longer capable of recognizing peptide antigens presented on major histocompatibility complex proteins and thus incapable of attacking the patient's normal tissue. This could mitigate the risk of GvHD that can occur when allogeneic TCR-positive T cells are infused into patients who are unrelated to the healthy donor, as shown in the figure below.



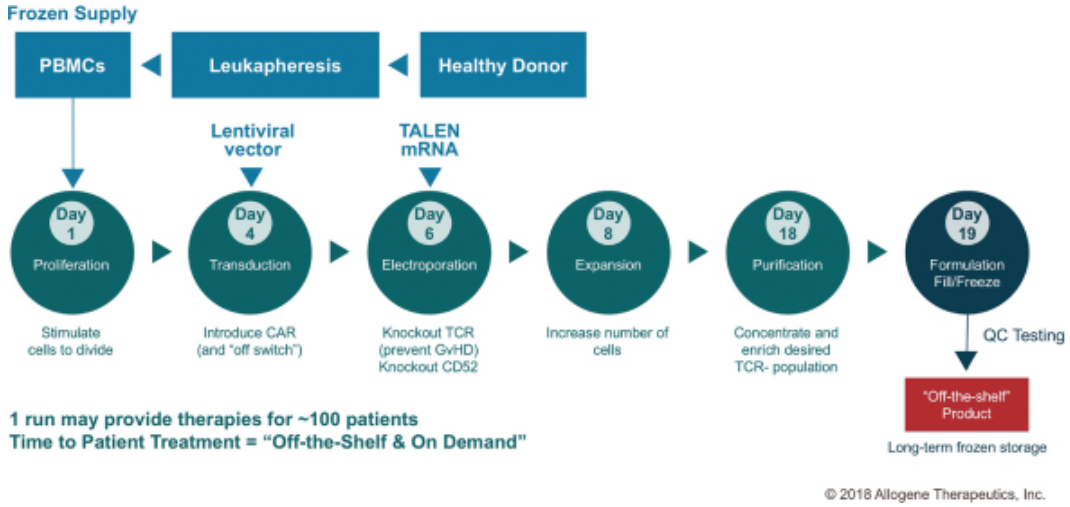
CD52 knockout: The patient's immune system is expected to recognize allogeneic T cells as foreign and destroy or reject them. To prevent this rejection, we use anti-CD52 antibody to deplete lymphocytes, including T cells, in patients. Anti-CD52 antibody recognizes CD52 protein expressed on many immune cells, including T cells. CD52 protein is expressed in both donor and patient immune cells. To selectively deplete a patient's immune cells while sparing the therapeutic allogeneic T cells, we use TALEN gene editing to inactivate the CD52 gene in allogeneic T cells, thus protecting allogeneic T cells from the anti-CD52 antibody mediated depletion.

By administering anti-CD52 antibody prior to infusing our product candidates, we believe we can reduce the likelihood of a patient's immune system rejecting the engineered allogeneic T cells. We believe this approach may create a window of persistence during which our engineered allogeneic T cells can expand and actively target and destroy cancer cells in the body. We also believe our approach is unique and differentiated. To capitalize on this differentiation and to secure our own source of anti-CD52 monoclonal antibody, we are developing ALLO-647. We submitted a DMF to the FDA in August 2018. If the FDA activates the DMF, Servier will be authorized to reference the DMF in its IND proposing use of ALLO-647 in combination with UCART19 in clinical trials.

Step 3. Purification, Formulation, and Storage

Once the allogeneic T cells have been engineered with CARs and gene edited to remove the genes encoding TCRα and CD52, they are cultured for 10 days to increase the cell number and then harvested. The allogeneic cells then undergo a purification step to remove residual TCR positive cells that have not undergone TCRα gene editing. We believe this purification step is essential as none of the currently available gene-editing nucleases can completely inactivate the target genes. After overnight recovery, the cells are formulated in a cryopreservation media and filled into closed, stoppered vials prior to controlled-rate freezing and long term storage in the vapor phase of liquid nitrogen. This inventory will be securely stored and then shipped to patients or oncology centers as needed.

The figure below illustrates the steps in a manufacturing run for our engineered allogeneic CAR T product candidates.



Product Pipeline and Development Strategy

Using our proprietary allogeneic T cell platform, we are researching and developing multiple product candidates for the treatment of blood cancers and solid tumors.

Our product candidates are allogeneic T cells engineered to be used as off-the-shelf treatments for any patient with a particular cancer type. Each product candidate targets a selected antigen expressed on tumor cells and bears specific engineered attributes.

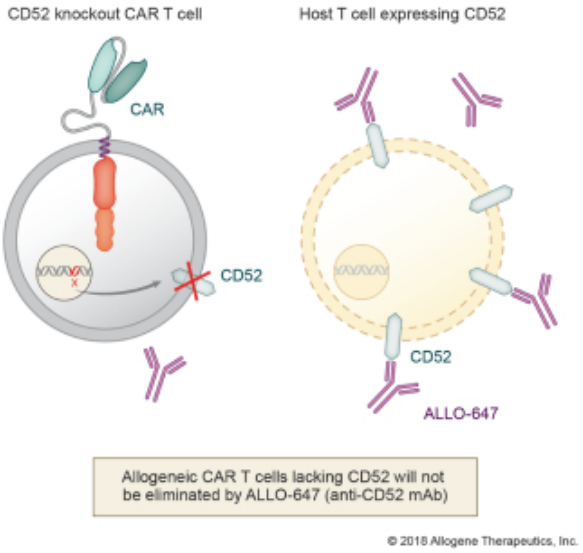
In the near term, we are progressing multiple product candidates directed at promising targets for blood cancers, including ALL, NHL, multiple myeloma and AML. We are also conducting earlier-stage research programs focused on targets associated with solid tumors, such as renal cell carcinoma, small cell lung cancer and other common epithelial cancers.

Our product pipeline is represented in the diagram below:

CATEGORY	PROGRAM	PRE-CLINICAL	PHASE 1	PHASE 2	PHASE 3[1]	NEXT ANTICIPATED MILESTONE
Hematological Malignancies	UCART19 (CD19/ALL) (Servier Sponsored)[2]					Initiate potential registrational trials in ALL in 2H 2019
	ALLO-501 (CD19/NHL)[2]					File IND in 1H 2019
	ALLO-715 (BCMA/MM)					File IND in 2019
	ALLO-819 (FLT3/AML)					
	CD70 (NHL)					
Solid Tumors	CD70 (RCC)					
	DLL3 (SCLC)					
Lymphodepletion Agent[3]	ALLO-647 (Anti-CD52 mAb)					

1 *May not be required if Phase 2 is a registrational clinical trial.*
2 *Servier holds ex-US commercial rights.*
3 *To enable expansion and persistence of allogeneic CAR T product candidates.*

In addition to the allogeneic CAR T cell product candidates we are developing for the treatment of blood cancers and solid tumors, we are developing an anti-CD52 monoclonal antibody, ALLO-647, which is designed to be used prior to infusing our other product candidates as part of the lymphodepletion regimen. As illustrated below, we believe ALLO-647 can reduce the likelihood of a patient's immune system from rejecting the engineered allogeneic T cells, and may create a window of persistence during which our engineered allogeneic T cells can actively target and destroy cancer cells in the body.

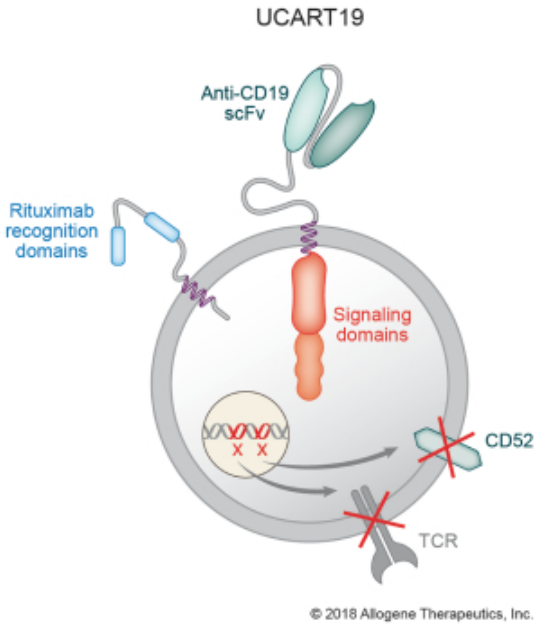


UCART19

We, in partnership with Servier, are developing UCART19 to be a potential first-in-class allogeneic CAR T cell product candidate for the treatment of pediatric and adult patients with R/R CD19 positive B-cell ALL. There are currently two ongoing Phase 1 clinical trials in adult and pediatric R/R ALL. We expect UCART19 to be advanced to potential registrational trials in the second half of 2019.

UCART19 targets CD19, an antigen expressed on the surface of B cells, including malignant B cells. In addition to these indications, CD19 targeting CAR T therapies have shown preliminary efficacy in chronic lymphocytic leukemia, mantle cell lymphoma and low-grade NHLs, such as follicular lymphoma (FL) or marginal zone lymphoma.

UCART19 is manufactured to express a CAR that is designed to target CD19 and gene edited to lack TCRα and CD52 to minimize the risk of GvHD and avoid being destroyed by the patient's immune system. In addition, UCART19 cells are engineered to express a small protein on the cell surface called RQR8, which consists of two rituximab recognition domains separated by a recognition domain for an anti-CD34 antibody. This allows for recognition and elimination of cells in the event that silencing of CAR activity is desired. The figure bellow depicts the construct of UCART19.



Target Indication: Acute Lymphoblastic Leukemia (ALL)

ALL is characterized by the proliferation of immature lymphocytes in the bone marrow. Approximately 5,960 new cases and 1,470 deaths in the United States are anticipated in 2018, according to the U.S. SEER database. Approximately 80% of cases of ALL are B-cell ALL, which we plan to address with UCART19.

The risk for developing ALL is highest in children younger than five years of age. From age five until the mid-20s, the risk declines slowly and begins to steadily rise again after age 50. Overall, about 40% of all cases of ALL are in adults. Though most cases occur in children, approximately 80% of deaths from ALL occur in adults.

Over the past four decades pediatric cure rates have reached greater than 80% in developed countries. This progress can be attributed, in part, to a deeper understanding of the molecular genetics and pathogenesis of the disease, advances in combination chemotherapy, monitoring of minimal residual disease, and use of tyrosine kinase inhibitors for Philadelphia chromosome–positive ALL. Allogeneic stem-cell transplant (allo-SCT) offers the potential for cure in some individuals, however, the option is available only to approximately a third of patients due to the lack of compatible stem cell source, general health, or the high risk of complications. Furthermore, allo-SCT carries a high rate of treatment-related mortality which can occur in approximately 20-30% of patients undergoing allo-SCT. In patients with R/R ALL after two or more lines of therapy, the median disease-free survival is less than six months. The five-year overall survival in adults over the age of 60 is approximately 20%, highlighting the high unmet need despite the recent advances in the treatment of ALL.

Clinical Data

UCART19 is being studied in two ongoing Phase 1 clinical trials, CALM and PALL, sponsored and conducted by Servier, our collaboration partner. In addition, UCART19 has been used in three patients under a compassionate use license.

Initiated in 2016, CALM is an ongoing Phase 1, open-label, dose-escalation clinical trial in adult patients with R/R ALL to evaluate safety, anti-leukemic activity, and determine the maximum tolerated dose (MTD). Post-therapy allo-SCT was allowed at the discretion of the investigator. The CALM trial commenced in the United Kingdom at King's College Hospital NHS Foundation Trust, in the United States at the Hospital of the University of Pennsylvania, Massachusetts General Hospital and University of Texas MD Anderson Cancer Center, and in France at Hôpital Saint-Antoine and Hôpital Saint-Louis. Of the 12 patients enrolled at the time of the April 2018 data cutoff, 10 were enrolled in Europe.

Initiated in 2016, PALL is an ongoing Phase 1, open-label, clinical trial in pediatric R/R ALL patients to evaluate safety and anti-leukemic activity. The PALL clinical trial commenced in the United Kingdom at University College London Great Ormond Hospital, in Belgium at Het Kinderziekenhuis Prinses Elisabeth, and in France at Hôpital Robert-Debré. All six patients enrolled at the time of the April 2018 data cutoff were enrolled in the United Kingdom.

Prior to the initiation of CALM and PALL, UCART19 was administered to three patients with CD19 positive B-cell ALL (two children and one adult) under a compassionate use license granted by the Medicines and Healthcare Products Regulatory Agency in the United Kingdom. The patients had previously failed multiple lines of prior treatment. UCART19 for these patients was manufactured at an academic site, the University College London. The two children are alive (37 and 31 months after UCART19 infusion) and the one adult died within the first month following UCART19 infusion due to disease progression.

CALM Interim Clinical Findings

As of April 2018, all 12 of the patients enrolled had been treated, with six patients at the first dose level of 6×10^6 total cells (approximately 10^5 cells per kilogram) and six patients at the second dose level with 6 to 8×10^7 total cells (approximately 10^6 cells per kilogram). As of the April 2018 data cutoff, no patients were treated at the third and final dose level of 1.8 to 2.4×10^8 total cells. The majority of the patients received three or greater lines of prior treatment, with three having received a prior treatment of blinatumomab, and seven having received a prior treatment of allo-SCT, reflecting clinical practice in Europe where 10 of the 12 patients were enrolled. Patient characteristics are presented below.

	All (N=12)
Median age in yrs (range)	29.50 (18-62)
Nb of prior treatment lines	
1 or 2	4
³3	8
Incl. prior inotuzumab ozogamicin	6
Incl. prior blinatumomab	3
Previous allo-SCT	7
Time of relapse following previous allo-SCT	
< 6 months	4
³ 6 months	3
Median (range)	5.9 months (4.1-11)
Bone marrow blasts prior to lymphodepletion	
<5%	3
5-25%	3
>25%	6
Median (range)	34% (0-98)

Interim Safety

All 12 enrolled patients received UCART19 at the target cell dose following lymphodepleting chemotherapy consisting of cyclophosphamide and fludarabine, with 10 patients receiving alemtuzumab, which we refer to as the FCA regimen, and two patients not receiving alemtuzumab, which we refer to as the FC regimen. The table below summarizes the adverse events by grade related to UCART19 infusion as well as those related to the lymphodepletion regimen. Grade 1 represents mild toxicity, Grade 2 represents moderate toxicity, Grade 3 represents severe toxicity and Grade 4 represents life threatening toxicity. Grade 5 toxicity represents toxicity resulting in death.

	Worst Grade					
N=12	G1 n(%)	G2 n(%)	G3 n(%)	G4 n(%)	G5 n(%)	All Grades n(%)
AEs related to UCART19						
Cytokine release syndrome	1 (8.3)	8 (66.7)	1 (8.3)	1 (8.3)	—	11 (91.7)
Neurotoxicity events	3 (25.0)	—	—	—	—	3 (25.0)
Graft-versus-host disease in skin	1 (8.3)	—	—	—	—	1 (8.3)
AEs related to lymphodepletion and/or UCART19						
Prolonged cytopenia(1)	—	—	—	3 (25.0)	—	3 (25.0)
Neutropenic sepsis	—	—	—	1 (8.3)	1 (8.3)	2 (16.7)
CMV infection	—	3 (25.0)	—	—	—	3 (25.0)
Adenovirus infection	1 (8.3)	—	1 (8.3)	—	—	2 (16.7)

(1) Persistent Grade 4 neutropenia and/or thrombocytopenia beyond day 42 post UCART19 infusion.

The most common UCART19 related adverse event was CRS, reported in 11 patients (two patients experiencing severe cases of CRS, one Grade 3 and one Grade 4). Three patients developed prolonged cytopenia, defined as persistent cytopenia beyond day 42 after UCART19 infusion. Three patients experienced mild, or Grade 1, neurotoxicity events. One patient experienced Grade 1 GvHD adverse event of the skin, which resolved with topical steroids.

Two dose limiting toxicities have been reported. The first case occurred at the first dose level and was a Grade 4 CRS related to UCART19, and associated with Grade 5 neutropenic sepsis related to lymphodepletion and UCART19. Death occurred on day 15 after UCART19 infusion. The second case, a Grade 4 prolonged cytopenia, occurred at the second dose level and was reported as related to both lymphodepletion and UCART19. This patient underwent allo-SCT and had an unrelated Grade 5 pulmonary hemorrhage in the setting of infection on day 19 following allo-SCT or day 82 after UCART19 infusion. Grade 5 adverse events have been reported in other autologous anti-CD19 CAR T cell therapy trials in part due to advanced stage of disease and accompanying confounding conditions.

Two additional deaths have also been reported that were not attributed to UCART19. One patient died from progressive disease, and one patient from allo-SCT related complications. Transplant related mortality occurs in approximately 20-30% of patients following allo-SCT.

Interim Efficacy

Of the 12 patients dosed with UCART19, two were not evaluable (one died at day 15, as noted above, and one had not reached the day 28 evaluation as of the April 2018 data cutoff). Eight out of the 10 evaluable patients achieved a CR, defined as the absence of any evidence of cancer, or CR with incomplete blood count recovery (CRi). Seven patients achieved MRD- CR. Two patients received a second dose of UCART19 under compassionate use (as a deviation from the clinical trial protocol) and both achieved MRD- CR. MRD- CR occurs when a patient achieves a CR and there is no evidence of ALL cells in the marrow when using sensitive

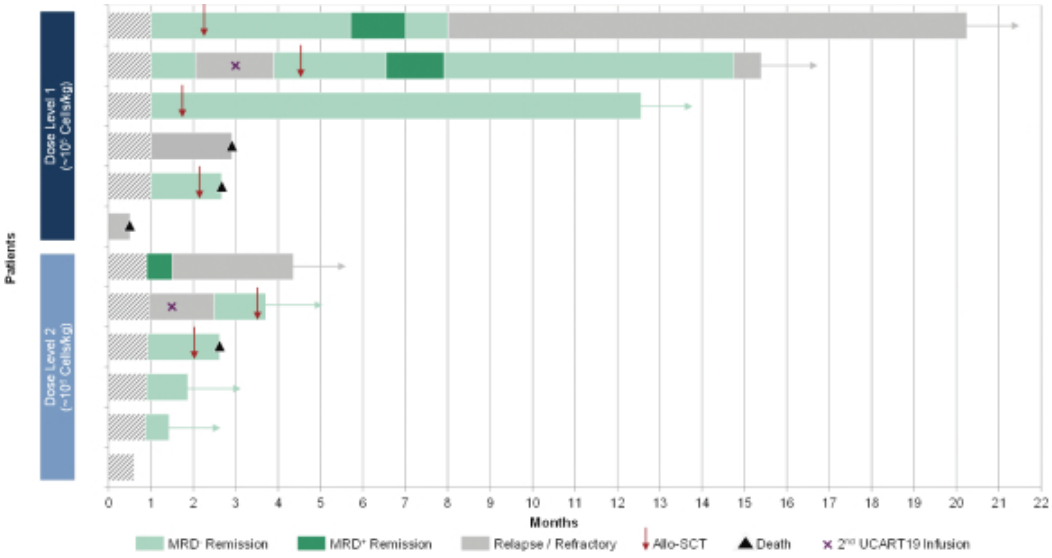
tests such as polymerase chain reaction or flow cytometry. CR or CRi rates are the typical regulatory standard, but studies in both children and adults with ALL have demonstrated a strong correlation between minimal residual disease (MRD+) and risks for relapse.

Six patients proceeded to an allo-SCT, including four patients after the first dose of UCART19, and two patients after the second dose. As of the April 2018 data cutoff, four patients remained in MRD- CR at 12.4, 3.6, 1.8 and 1.3 months after UCART19 infusion. Subsequent to the April 2018 cutoff date, one of the four patients subsequently progressed.

CAR T cell expansion was detected in blood from day 7 after UCART19 infusion, reaching the peak expansion between day 10 and day 17. One patient at the second dose level showed the highest peak linked to a long persistence up to day 42 still ongoing at the data cutoff. At dose level two, the longest persistence observed as of the data cutoff occurred on day 56.

The two patients on the FC regimen showed no evidence of CAR T cell expansion. A similar lack of CAR T cell expansion was seen in two out of 10 patients on the FCA regimen.

The following table illustrates response, duration of remission and re-dosing of UCART19 in the CALM trial as of the April 2018 data cutoff.



Since the April 2018 data cutoff, based on preliminary discussions with the study investigators, two additional patients have been treated at the third dose level of 1.8 to 2.4 × 10^8 total cells and we believe these patients have not responded.

PALL Interim Clinical Findings

As of April 2018, all six of the patients enrolled had been treated at a weight-banded cell dose equivalent to 1.1 to 2.3 × 10^6 cells/kg. Five patients had three or greater lines of prior treatment, with three having received four or greater lines of prior treatment. Two patients had received a prior treatment of allo-SCT. Patient characteristics are presented below.

	All (N=6)
Median age in yrs (range)	3.75 (0.8-16.4)
Disease at screening	
B-All relapsed	6
Disease at diagnosis	
NOS	4
with t(12;21)(p13;q22) TEL-AML1 (ETV6-RUNX1)	1
with t(v;11q23);MLL rearranged	1
Nb of prior treatment lines	
2 prior treatment lines	1
3 prior treatment lines	2
³4 prior treatment lines	3
Previous inotuzumab ozogamicin	2
Previous allogeneic stem cell transplantation (SCT)	2
Time of relapse following previous SCT	
>6 months	2
Bone marrow blasts at inclusion	
<10%	5
>50%	1
Median (range)	4.5% (0-80)

Interim Safety

All six enrolled patients received UCART19 at the target cell dose following lymphodepleting chemotherapy consisting of cyclophosphamide and fludarabine. Five patients also received alemtuzumab. The table below summarizes the adverse events by grade related to UCART19 cell infusion as well as those related to the lymphodepletion regimen and/or UCART19.

	Worst Grade					
N=6	G1 n(%)	G2 n(%)	G3 n(%)	G4 n(%)	G5 n(%)	All Grades n(%)
AEs related to UCART19						
Cytokine release syndrome	1 (16.7)	4 (66.7)	1 (16.7)	—	—	6 (100.0)
Neurotoxic events	2 (33.3)	1 (16.7)	—	—	—	3 (50.0)
Graft-versus-host disease in skin	1 (16.7)	—	—	—	—	1 (16.7)
AEs related to lymphodepletion and/or UCART19						
Prolonged cytopenia(1)	—	—	—	3 (50.0)	—	3 (50.0)
BK virus hemorrhagic cystitis	—	—	2 (33.3)	—	—	2 (33.3)
Metapneumovirus infection	—	—	—	1 (16.7)	—	1 (16.7)
CMV infection	—	—	1 (16.7)	—	—	1 (16.7)
Febrile neutropenia	—	—	1 (16.7)	—	—	1 (16.7)
Adenovirus infection	1 (16.7)	—	—	—	—	1 (16.7)

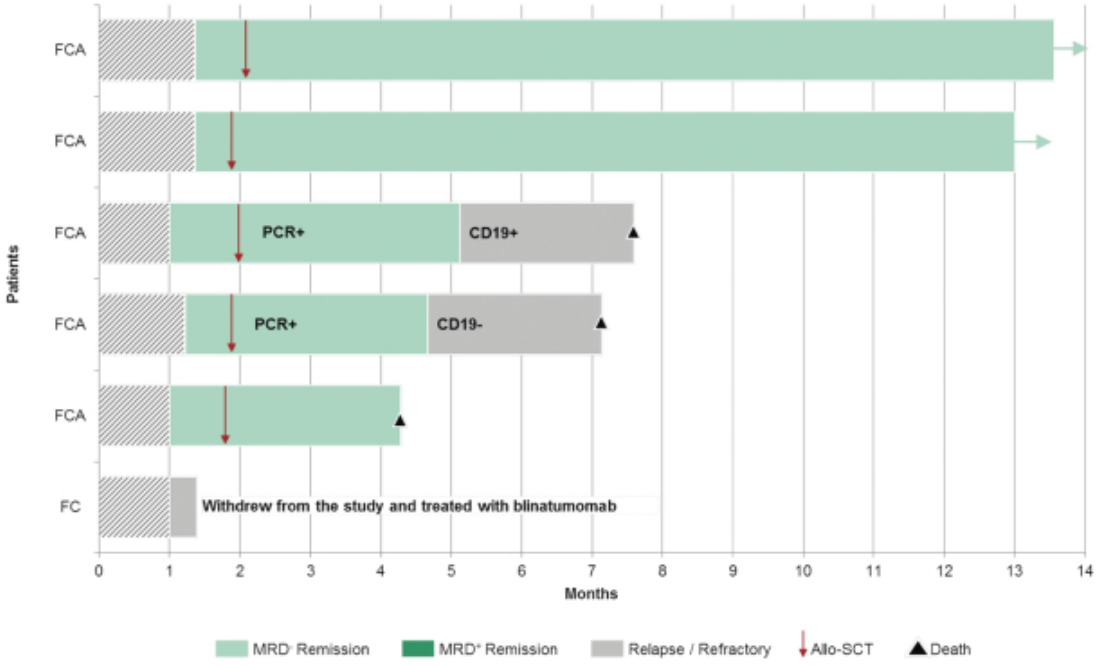
(1) Persistent Grade 4 neutropenia and/or thrombocytopenia beyond day 42 post UCART19 infusion.

As of April 2018, the most frequent adverse events related to UCART19 were CRS in all treated patients, with one patient experiencing Grade 3 CRS. Mild-to-moderate neurotoxic events occurred in three of the six treated patients. Three patients experienced prolonged cytopenia, reported as related to lymphodepletion and in some cases possibly related to UCART19. Viral reactivation with cytomegalovirus (CMV), adenovirus, BK virus and metapneumovirus was attributed to lymphodepletion. One patient experienced transient Grade 1 skin GvHD. Two patients died from disease recurrence following allo-SCT and one patient died from complications of allo-SCT. There were no treatment-related deaths.

Interim Efficacy

All patients completed the 28-day evaluation period and were evaluable for anti-leukemic activity. Five of the six patients achieved MRD- CRs and all five underwent allo-SCT. Two patients were in remission greater than 13 months after UCART19 infusion, as of the April 2018 data cutoff, and three patients died following allo-SCT, two due to disease recurrence, and one due to transplant-related complications. One patient withdrew from the study due to lack of response and received subsequent treatment with blinatumomab off-study. This is the only patient that received the FC regimen.

The following table illustrates response and duration of remission as of the April 2018 data cutoff.



Since the April 2018 data cutoff, based on preliminary discussions with the study investigators, one additional patient has been treated and we believe this patient has not responded.

Development Plan

We, in partnership with Servier, plan to complete the third dose level of UCART19 to determine recommended Phase 2 dose level in CALM and then expand the enrollment to gain additional patient experience on the optimal lymphodepletion regimen, specifically testing the benefits of anti-CD52 monoclonal antibody, alemtuzumab or ALLO-647. Upon completion of these study objectives, which we expect to occur in the second half of 2019, we expect UCART19 to be advanced to potential registrational trials, CALM II and PALL II.

CALM II will be designed to evaluate the efficacy of UCART19 in an open-label, Phase 2, international, non-comparative, two-stage, pivotal, multicenter, single-arm clinical trial in adult patients with R/R ALL who have exhausted available treatment options. The dose will be a flat dose based on the recommended Phase 2 dose identified in Phase 1. The primary efficacy end-point will be overall complete remission rate within three months of UCART19 infusion. Up to 63 patients are expected to be enrolled. Redosing will be allowed in case of relapse within a three month period after the first infusion.

PALL II will be designed as an open-label, Phase 2, international, non-comparative, two-stage, pivotal clinical trial of pediatric patients with R/R ALL aged from three months up to less than 18 years. The dose of UCART19 will depend on the actual weight at the time of infusion. The primary efficacy end-point will be overall complete remission rate within two months of UCART19 infusion. Up to 63 patients are expected to be enrolled. Patients will be monitored for 12 months after infusion whether or not they have received an allo-SCT. Re-dosing will be allowed in CALM II in case of relapse within the three-month period after the first infusion. A pediatric investigation plan was submitted to the European Medicines Agency in March 2018.

In the ongoing CALM and PALL trials, we use alemtuzumab, a commercially available monoclonal antibody that binds CD52, for the purpose of lymphodepletion. To secure our own readily available source of anti-CD52 antibody, we are developing our own monoclonal anti-CD52 antibody, ALLO-647. We submitted a DMF to the FDA in August 2018 for ALLO-647. If the FDA activates the DMF, Servier will be authorized to reference the DMF in its IND proposing use of ALLO-647 in combination with UCART19 in clinical trials. We plan to use ALLO-647 in the safety dose-expansion phase of the ongoing CALM clinical trial to further evaluate and optimize its use as a lymphodepleting agent. If anti-CD52 monoclonal antibody is deemed necessary for lymphodepletion, ALLO-647, if approved for clinical use, will be used in the CALM II and PALL II clinical trials. We expect to make the determination based on the expanded enrollment in the first CALM trial as noted above.

ALLO-501

ALLO-501 is our second allogeneic CAR T cell product candidate targeting CD19. We plan to submit an IND in the first half of 2019 for a Phase 1 clinical trial of ALLO-501 for the treatment of NHL. ALLO-501 is jointly developed by us and Servier. We will be the sponsor of the ALLO-501 program and lead the clinical development program.

ALLO-501 is identical to UCART19 in molecular design, however several modifications have been introduced by us to the manufacturing process for ALLO-501, which distinguishes ALLO-501 from UCART19. These modifications are designed to facilitate more efficient manufacturing scale-up for the larger patient population targeted by ALLO-501. Clinical supply for ALLO-501 trials will be manufactured in the United States using a CMO. Transfer of manufacturing technology to the CMO has been completed.

Target Indication: Non-Hodgkin Lymphoma (NHL)

NHL is a hematologic cancer originating from malignant lymphocytes. It is the most common hematological malignancy in the United States, with 74,680 new cases and 19,910 deaths estimated to be diagnosed in 2018, according to the U.S. SEER database. Over 60 NHL subtypes have been identified, and each subtype represents different neoplastic lymphoid cells (T, B or NK cells) that have arrested at different stages of differentiation. The most common subtype is B-cell, which represents over 90% of all new NHL cases in 2016.

B-cell NHL itself represents a group of different neoplasms that not only differ in pathology, but also response to therapy and prognosis. NHL can be rapidly growing (aggressive) with short survival, such as large B-cell lymphomas, which include DLBCL, or it can be slow growing, or indolent, such as FL. Despite recent therapeutic advances, more than 50% of patients with aggressive B-cell NHL are incurable using existing approved therapies.

The R-CHOP chemotherapy combination (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone) introduced in the early 2000s remains the standard of care for newly diagnosed DLBCL, and five-year survival can be achieved for 55-60% of patients. Unfortunately, approximately 30% of DLBCL second line and subsequent therapy is dependent on whether the patients are candidates for high-dose therapy followed by autologous stem-cell therapy. A retrospective analysis of patients with R/R DLBCL found that outcomes in this population are poor, with an objective response rate of 26% (CR: 7%, partial response: 18%) and median overall survival of 6.3 months.

Despite availability of multiple active agents, high response rates, and long progression-free survival with first-line therapy, follicular lymphoma remains an incurable disease. Most patients treated today eventually relapse, and subsequent responses and durations of responses become increasingly shorter. Ultimately, patients become resistant to chemo-immunotherapy, clinically defined as relapsed within 12 months. In these patients, the toxicity commonly outweighs the benefit of treatment with chemotherapy. Therefore, there remains a high unmet medical need for newer treatment options, especially for those patients with cancer that is resistant to chemo-immunotherapy.

Clinical Development Plan

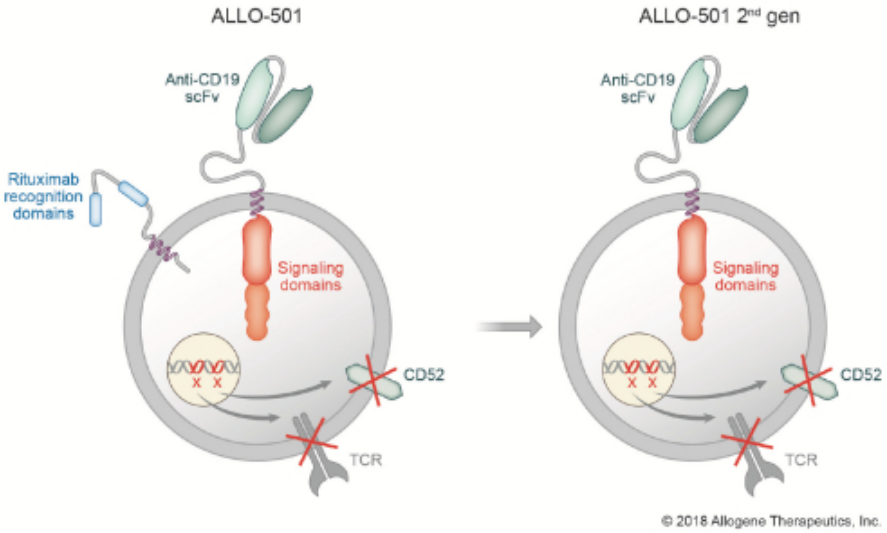
We plan to submit an IND for ALLO-501 in the first half of 2019. The initial clinical trial is expected to be an open-label, Phase 1/2, single arm, multicenter clinical trial evaluating the safety and efficacy of ALLO-501 in patients with R/R large B-cell lymphoma. Cell kinetics and pharmacodynamics of ALLO-501 will be evaluated as secondary and exploratory objectives, respectively. The Phase 1 portion of the trial will be a dose-escalation study for ALLO-501. Based on the MTD established during dose escalation, a single dose of ALLO-501 will be selected as the recommended Phase 2 dose. Prior to ALLO-501 treatment, all patients will undergo lymphodepletion with an FC regimen and potentially ALLO-647 following the same design as in the CALM clinical trial.

Assuming positive Phase 1 data in the large B-cell lymphoma trial, we plan to introduce our second-generation of ALLO-501, as discussed below, in the Phase 2 portion of the trial. We believe the second-generation ALLO-501 will have the potential to facilitate treatment of patients who were previously treated with rituximab.

Up to 18 patients are expected to be evaluated in Phase 1 and approximately 70 patients are expected to be evaluated in Phase 2. The Phase 2 portion of the study is anticipated to commence in 2020. All patients treated with ALLO-501 will be followed in a long term follow up study for at least 15 years.

Next Generation

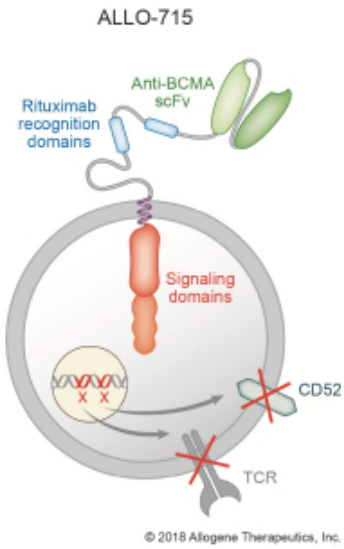
We have created a second version of ALLO-501. The first and current version of ALLO-501 co-expresses a small protein on the cell surface called RQR8, which consists of two rituximab recognition domains separated by a recognition domain for an anti-CD34 antibody. This allows for removal of the CAR T by rituximab. Since prior treatment with rituximab, depending on the lag time between the rituximab administration and planned ALLO-501 infusion, may reduce the persistence of ALLO-501, we have removed RQR8 in this second version of ALLO-501, as illustrated in the figure below. The second version of ALLO-501 manufactured from several donors under non-cGMP conditions has been compared to the current version of ALLO-501 *in vitro*. In this study, we found that both first and second versions of ALLO-501 exhibited similar characteristics and killing activity.



ALLO-715

ALLO-715 is an allogeneic CAR T cell product candidate targeting BCMA. BCMA is a member of the tumor necrosis factor receptor family and is selectively expressed on immunoglobulin-producing plasma cells, including malignant plasma cells (myeloma cells). ALLO-715 will initially be evaluated for the treatment of adult patients with R/R multiple myeloma. We plan to submit an IND for ALLO-715 in 2019.

ALLO-715 is manufactured to express a CAR that is designed to target BCMA and gene edited to lack TCRα and CD52 to minimize the risk of GvHD and avoid being destroyed by the patient's immune system. In addition, rituximab recognition domains, as an off-switch, has been incorporated in between the scFv and the linker domain. We have completed the lead candidate selection and manufacturing under cGMP conditions is in process to enable IND submission. The figure bellow depicts the construct of ALLO-715.



Target Indication: Multiple Myeloma

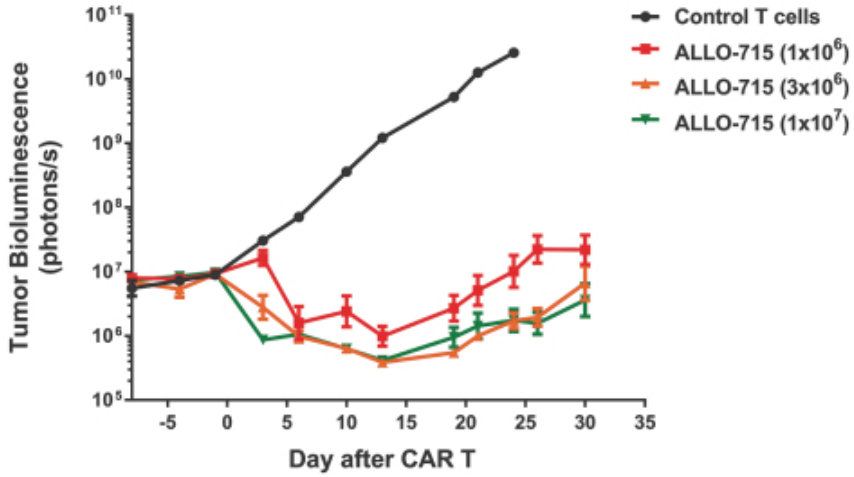
Multiple myeloma is a hematological malignancy that is characterized by uncontrolled expansion of bone marrow plasma cells. There will be an estimated 30,770 new cases of multiple myeloma and 12,770 deaths from multiple myeloma in 2018 in the United States according to the U.S. SEER database. Multiple myeloma predominantly affects the elderly, with 14 times more patients diagnosed at age 65 and over than those diagnosed under the age of 65.

For patients under the age of 70 with no comorbidities, autologous stem cell therapy represents a potentially curative treatment option. For transplant ineligible patients, immunomodulatory drugs (Revlimid, Pomalyst, Thalomid) and proteasome inhibitors (Velcade, Kyrprolis, Ninlaro), often used in combination with one another, have displaced older cytotoxic agents as the mainstay of treatment. In the past five years, several new drugs with novel mechanisms (Darzalex, Empliciti, Farydak) have been approved for multiple myeloma, however none of these novel treatments, other than autologous stem cell therapy, is considered as curative.

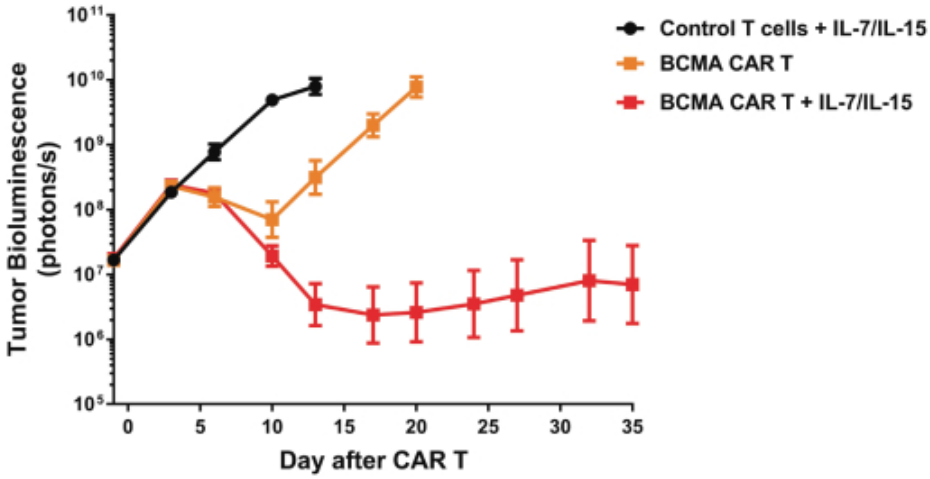
Despite the introduction of newer therapies, a majority of patients are expected to relapse and the unmet need in patients with R/R myeloma remains high. In clinical trials, only 3% of patients who were previously treated with at least three lines of therapy (including proteasome inhibitors and immunomodulatory drugs), or who were refractory to both proteasome inhibitors and immunomodulatory drugs, achieved a complete response to Darzalex. Median survival in such patients was just 17.5 months. Trials of autologous CAR T cell therapies such as bb2121, currently being developed by bluebird bio, Inc. (bluebird) in partnership with Celgene Corporation, have shown early promise in multiple myeloma with complete response rates of 50% at doses greater than 150×10^6 CAR T cells.

Pre-clinical Findings

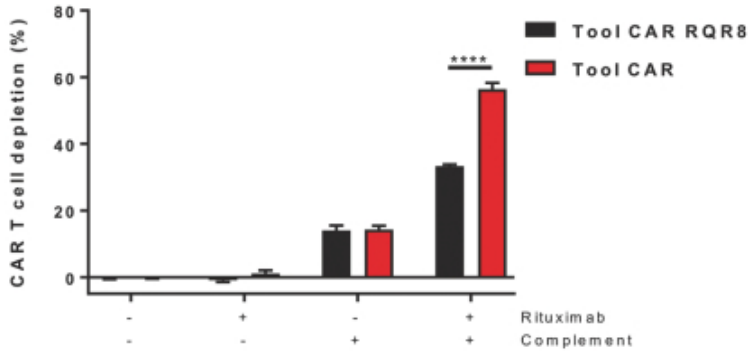
ALLO-715 showed activity *in vitro* against myeloma cell lines and *in vivo* anti-tumor activity, as illustrated below. ALLO-715 allogeneic T cells were injected seven days after intravenous injection of luciferase-expressing a human myeloma cell line into immuno-deficient mice. As expected, tumors in mice injected with control T cells continued to grow as evidenced by increased bioluminescence from these mice. Tumor reduction was observed in ALLO-715 treated mice in a dose-dependent manner.



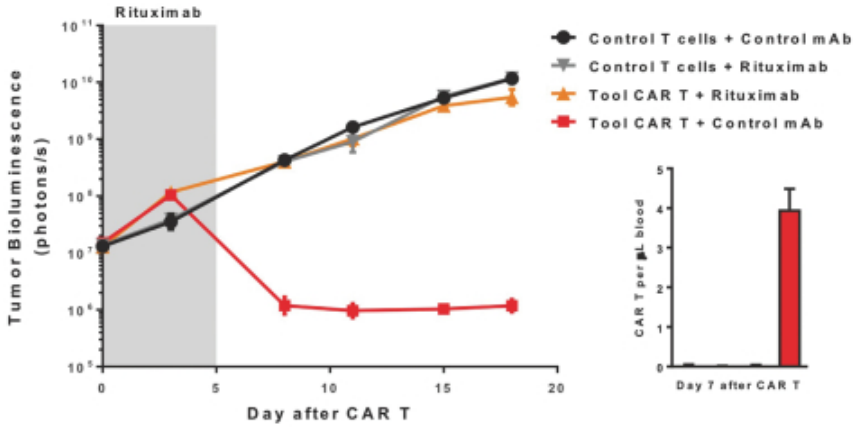
Limited duration of activity of human CAR T cells in mice can be caused by the lack of T cell homeostatic cytokines that normally supports growth and expansion of T cells. To test whether cytokine expression can increase the anti-tumor efficacy of BCMA CAR T cells, mice were treated with a virus to induce expression of human IL-7 and IL-15/IL-15Ra fusion proteins prior to implantation of a myeloma cell line. Animals were then treated with a suboptimal dose of BCMA CAR T cells and tumor growth was monitored by luminescence. Without prior treatment of cytokine encoding virus, continued growth of myeloma cell line was evident in mice treated with BCMA CAR T cells. However, in mice that were previously treated with the cytokine encoding viruses, the same dose of BCMA CAR T cells produced significant and prolonged tumor regression, as illustrated below.



Complement mediated cytotoxicity (CDC) is one of the mechanisms by which rituximab mediates CD20-dependent cell killing. Cells expressing a BCMA CAR with a separate off-switch (RQR8) or an intra-CAR off-switch (R2) were cultured for three hours in the presence of rituximab and complement and residual CAR T cells were measured by flow cytometry. Intra-CAR off-switch (R2) showed superior clearance of BCMA CAR T cells relative to first generation off-switch (RQR8), as illustrated below.



The R2 off-switch has also been observed to function *in vivo*, as illustrated below with BCMA CAR T cells showing efficient anti-tumor activity in the absence of rituximab but losing anti-tumor activity in the presence of rituximab. Mice previously injected with a luciferase-expressing human myeloma cell line received BCMA CAR T cells followed by five consecutive daily injections of rituximab or control immunoglobulin G (IgG). Rituximab treatment abrogated the anti-tumor activity of BCMA CAR T cells in this experiment.



Clinical Development Plan

We plan to submit an IND to initiate a Phase 1/2 clinical trial of ALLO-715 in 2019. The Phase 1 portion of the trial is expected to be an open label, multi-dose, multi center, dose escalation, safety, pharmacokinetic and pharmacodynamic clinical trial of ALLO-715 in adult patients with R/R multiple myeloma, who have progressed on at least two lines of prior therapy, including protease inhibitor therapies, immunomodulatory drugs and anti-CD38 monoclonal antibodies. The primary goal will be to assess safety and tolerability at increasing dose levels of ALLO-715 in successive cohorts of patients with multiple myeloma in order to estimate the MTD and the recommended Phase 2 dose of ALLO-715.

The Phase 2 dose expansion portion of the trial is expected to evaluate safety and efficacy of ALLO-715 at the recommended dose and potentially support the registration of ALLO-715 in patients with R/R multiple

myeloma who have progressed on at least two lines of prior therapy. We expect a maximum of up to 110 patients to be enrolled in this Phase 1/2 study.

Future Opportunities

Moving forward, we plan to utilize our allogeneic platform to pursue additional targets of interest. These include the additional targets currently in our pipeline as well as other targets that might be validated in the future. For example, we are developing allogeneic CAR T cell product candidates targeting Flt3 for the treatment of AML (ALLO-819), CD70 for the treatment of renal cell carcinoma, and DLL3 for the treatment of small cell lung cancer (SCLC).

- ***Acute Myeloid Leukemia and ALLO-819***. Flt3 is a receptor tyrosine kinase that is overactive in AML blasts. AML is a tumor type of high unmet medical need with few treatment options. It is a cancer of bone marrow stem cells and is the most common type of leukemia in adults. SEER estimates 19,520 new diagnoses and 10,670 deaths in the United States in 2018. Patients have a poor prognosis despite improvements in chemotherapy regimens and supportive care. We have conducted *in vitro* and *in vivo* studies of our anti-Flt3 product candidate, ALLO-819 that showed anti-tumor activity against blasts present in bone marrow from AML patients and in mice. We are currently advancing an IND-enabling data set for ALLO-819.
- ***Renal Cell Carcinoma and CD70***. Analysis using proteomic and immunohistochemistry techniques have demonstrated a high level of CD70 expression in clear cell renal cell carcinoma (ccRCC) cell lines and in more than 80% of human ccRCC tumor samples. ccRCC is the most common subtype of renal cancer. Approximately 65,000 new cases of renal cell carcinoma are diagnosed per year in the United States and 15,000 deaths are anticipated in 2018, according to SEER. Average duration of disease control is eight to nine months in first-line and five to six months in second-line, with the five year survival rate for metastatic disease of only 11.6%, and median survival of high risk group at 5.9 months. We are in the final stages of testing and refining constructs and selecting an anti-CD70 CAR T cell product candidate to progress to IND-enabling studies.
- ***Small Cell Lung Cancer and DLL3***. DLL3 is a target which is being pursued for SCLC using ADCs, bi-specifics and autologous CAR T therapies. According to SEER, there will be approximately 234,000 new cases of lung cancer in the United States in 2018, and according to the American Cancer Society, SCLC comprises approximately 10-15% of all lung cancers. SCLC is responsive to chemotherapy, but recurrence arises rapidly, with less than 7% of patients surviving over five years. Recently, SCLC has shown to be responsive to immunotherapy with approximately one-third of patients responding to PD-1/PD-L1 therapy and achieving a median overall survival of approximately eight months. We believe an allogeneic anti-DLL3 CAR T cell product candidate could be used alone or in combination with PD-1/PD-L1 therapy. We are currently testing and refining constructs for an anti-DLL3 CAR T cell product candidate, and following completion we plan to progress to IND-enabling studies.

We also plan to enhance our platform using next-generation technologies such as cytokine signal modulation, switch technologies, including small-molecule induced off-switch, and site-specific integration.

- ***Cytokine Signal Modulation***. Expressing cytokines from the CAR T cells or producing intracellular signals which mimic the action of a cell receiving a cytokine signal could enhance the proliferative potential, migratory behavior, and killing activity of engineered CAR T cells. Such modulation may allow engineered CAR T cells to more effectively elicit endogenous immune response thereby enhancing anti-tumor activity of CAR T cells. We are currently investigating controlled or regulated expression of select cytokines and testing hybrid cytokine receptors to modulate cytokine signaling in CAR T cells in a desired manner.
- ***Switch Technology***. In addition to the CD20 epitope engineered off-switch, such as RQR8 and R2 off-switches that responds to rituximab, we are investigating the use of small molecule dimerization of

death-inducing proteins to eliminate CAR T cells in the event that CAR T cell activity is no longer needed or needs to be shut off for safety reasons.

- ***Site-Specific Integration***. Using a combination of gene-editing technology and homologous recombination technology we can potentially integrate the CAR into specific target genes within the T cell DNA. Such site-specific integration allows the CAR or other target genes to be introduced into the T cells in a more homogeneous manner, allowing a more uniform and controlled expression of the CAR, with the goal of generating CAR T cell products that behave in a more consistent and predictable manner.

In addition, we continually survey the scientific and industry landscape for opportunities to license, partner or acquire technologies that may help us advance current or new T cell therapies for the benefit of patients.

Our Manufacturing Strategy

We have invested resources to optimize our manufacturing process, including the development of improved analytical methods. We plan to continue to invest in process science, product characterization and manufacturing to continuously improve our production and supply chain capabilities over time.

Our product candidates are designed and manufactured via a platform comprised of defined unit operations and technologies. The process is gradually developed from small to larger scales, incorporating compliant procedures to create current good manufacturing practices (cGMP) conditions. Although we have a platform-based manufacturing model, each product is unique and for each new product candidate, a developmental phase is necessary to individually customize each engineering step and to create a robust procedure that can later be implemented in a cGMP environment to ensure the production of clinical batches. This work is performed in our research and development environment to evaluate and assess variability in each step of the process in order to define the most reliable production conditions.

In October 2015, Cellectis announced that it completed a series of three production runs of UCART19, confirming the transfer of Cellectis's manufacturing process into clinical grade, cGMP conditions. This important milestone established that allogeneic T cell product candidates can be manufactured under cGMP conditions and demonstrated the industrial production potential of UCART19. Servier is responsible for UCART19 manufacturing and is working with a CMO in Europe to provide clinical supply for the CALM and PALL clinical trials. ALLO-501 is identical in molecular design to UCART19, but is produced using a modified manufacturing process, optimized by us. ALLO-501 and ALLO-715 will be manufactured in the United States by a CMO, and we will manage all other aspects of the supply, including planning, CMO oversight, disposition and distribution logistics. We will similarly develop, and manufacture all of our other product candidates.

The CMO that is manufacturing the clinical supply of ALLO-501 and ALLO-715 in the United States is subject to cGMP requirements, using qualified equipment and materials. We also utilize a separate third party contractor to manufacture cGMP viral vector used to deliver the applicable CAR gene into the T cells. We believe all materials and components utilized in the production of the cell line, viral vector and final T cell product are available from qualified suppliers and suitable for pivotal process development in readiness for registration and commercialization.

We expect to continue to rely on our CMO and may rely on CMOs and other third parties for the manufacturing and processing of our product candidates in the future. We believe the use of contract manufacturing and testing for our first clinical product candidates is cost-effective and has allowed us to rapidly prepare for clinical trials in accordance with our development plans. We expect third-party manufacturers will be capable of providing and processing sufficient quantities of our product candidates to meet anticipated clinical trial demands.

In addition, we plan to build our own manufacturing facility and we are currently searching for a suitable location for such facility. We plan to create a robust supply chain with redundant sources of supply comprised of both internal and external infrastructure.

Strategic Agreements

Asset Contribution Agreement with Pfizer

In April 2018, we entered into an Asset Contribution Agreement (Pfizer Agreement) with Pfizer pursuant to which we acquired certain assets and assumed certain liabilities from Pfizer, including the Cellectis Agreement and the Servier Agreement described below, and other intellectual property for the development and administration of CAR T cells for the treatment of cancer.

As consideration for the purchased assets, we issued Pfizer 3,187,772 shares of our Series A-1 Preferred Stock. In addition, we are required to make milestone payments upon successful completion of regulatory and sales milestones on a target-by-target basis for certain targets, including CD19 and BCMA, covered by the Pfizer Agreement. The aggregate potential milestone payments upon successful completion of various regulatory milestones in the United States and the European Union are $30 million or $60 million per target (depending on the target, and $840.0 million for all targets), provided that we are not obligated to pay a milestone for regulatory approval in the European Union for an anti-CD19 allogeneic CAR T cell product, to the extent Servier has commercial rights to such territory. The aggregate potential milestone payments upon reaching certain annual net sales thresholds in North America, Europe, Asia, Australia and Oceania, which we refer to as the Territory, for a certain number of targets covered by the Pfizer Agreement are $325.0 million per target. Concurrently with our entry into the Pfizer Agreement, we and Pfizer entered into a letter agreement pursuant to which Pfizer granted us, in partial consideration for our milestone and royalty payment obligations under the Pfizer Agreement, an option to expand the Territory to include some or all of the rest of the world at our election. We may exercise the option at any time during the 12 year period following closing of the asset acquisition under the Pfizer Agreement.

Pfizer is also eligible to receive, on a product-by-product and country-by-country basis, (i) royalties in the low single-digit percentage on annual net sales in the United States for products commercialized by us targeting certain targets, including CD19, covered by the Pfizer Agreement, (ii) tiered marginal royalties ranging from the low to mid-single-digit percentages on annual net sales in any country in the world for products commercialized by us targeting certain other targets covered by the Pfizer Agreement and (iii) royalties in the low single-digit percentage on annual net sales in any country in the Territory for products commercialized by us targeting targets not covered by the Pfizer Agreement that use certain Pfizer intellectual property and for which an IND is first filed on or before April 6, 2023. The royalties in the foregoing clauses (i) and (ii) are subject to reduction for products not covered by certain patent claims or for future required licenses of third party intellectual property. Our royalty obligation with respect to a given product in a given country, which we refer to as the Pfizer Royalty Term, begins upon the first sale of such product in such country and ends on the later of (i) expiration of the last claim of a defined set of patent rights, in each case covering such product in such country or (ii) 12 years from the first sale of such product in such country.

Under the Pfizer Agreement, we are required to use commercially reasonable efforts to develop and seek regulatory approval in and for the United States and the European Union for certain products covered by the Pfizer Agreement and to commercialize each product covered by the Pfizer Agreement in the applicable royalty territory in which regulatory approval for such product has been obtained. We also agreed to offer employment to certain Pfizer employees on terms no less favorable than the terms such employees enjoyed while being employed by Pfizer. We hired 39 employees from Pfizer pursuant to the terms of the Pfizer Agreement.

Pfizer is required, subject to certain limitations, to indemnify us against damages arising out of any breach or inaccuracy in the representations or warranties made by Pfizer, any breach of a covenant by Pfizer or any

liability not acquired by us. Likewise, we are required, subject to certain limitations, to indemnify Pfizer against damages arising out of any breach or inaccuracy of our representations and warranties, any breach of a covenant made in the agreement or the related patent and know-how license agreement by us, including any practice of intellectual property outside of the scope of the license granted to us, or any assumed liability.

Research Collaboration and License Agreement with Cellectis

In June 2014, Pfizer entered into a Research Collaboration and License Agreement (Cellectis Agreement) with Cellectis. In April 2018, Pfizer assigned the agreement to us pursuant to the Pfizer Agreement.

Pursuant to the Cellectis Agreement, we have an exclusive, worldwide, royalty-bearing, sublicensable license, on a target-by-target basis, under certain of Cellectis's intellectual property to make, use, sell, import, and otherwise commercialize CAR T products directed at certain targets, including BCMA, Flt3, DLL3 and CD70, for the treatment of cancer.

The Cellectis Agreement included a research collaboration to conduct discovery and pre-clinical development activities to generate CAR T cells directed at targets selected by each party. Pursuant to the terms of the Cellectis Agreement, the research collaboration ended in June 2018.

Cellectis has a non-exclusive, worldwide, royalty-free, perpetual and irrevocable license, with sublicensing rights under certain conditions, under certain of our intellectual property to make, use, sell, import and otherwise commercialize CAR T products directed at Cellectis-selected targets.

The Cellectis Agreement provides for payments of up to $185.0 million per product that is directed against an Allogene-selected target, with aggregate potential pre-clinical, clinical and commercial milestone payments totaling up to $2.8 billion. We expect to pay Cellectis $5.0 million upon the dosing of the first patient in our Phase 1 clinical trial of ALLO-715 in 2019. Cellectis is also eligible to receive tiered royalties on annual worldwide net sales of any products that are commercialized by us that contain or incorporate, or are covered by, certain of Cellectis's intellectual property at rates in the high single-digit percentages. Such royalties may be reduced, on a licensed product-by-licensed product and country-by-country basis, for generic entry and for payments due under licenses of third party patents. Pursuant to the Cellectis Agreement, and subject to certain exceptions, we are required to indemnify Cellectis against all third party claims related to the development, manufacturing, commercialization or use of any product licensed by us to Cellectis targeting a Cellectis-selected target, and Cellectis is required, subject to certain exceptions, to indemnify us against all third party claims related to the development, manufacturing, commercialization or use of any product licensed by Cellectis to us targeting an Allogene-selected target.

The royalties are payable, on a licensed product-by-licensed product and country-by-country basis, until the later of (i) the expiration of the last to expire of the licensed patents covering such product; (ii) the loss of regulatory exclusivity afforded such product in such country, and (iii) the tenth anniversary of the date of the first commercial sale of such product in such country; however, in no event shall such royalties be payable, with respect to a particular licensed product, past the twentieth anniversary of the first commercial sale for such product.

Depending on the Cellectis-selected target, we have a right of first refusal or right of first negotiation to purchase or license from Cellectis rights to develop and commercialize products against such Cellectis-selected targets. Under the Cellectis Agreement, we have certain diligence obligations to progress the development of CAR T product candidates and to commercialize one CAR T product per Allogene-selected target in one major market country where we have received regulatory approval. If we materially breach any of our diligence obligations and fail to cure within 90 days, then with respect to certain targets, such target will cease to be an Allogene-selected target and instead will become a Cellectis-selected target.

Unless earlier terminated in accordance with the agreement, the Cellectis Agreement will expire on a product-by-product and country-by-country basis, upon expiration of all royalty payment obligations with respect to such licensed product in such country. Beginning at the first anniversary of the effective date of the Cellectis Agreement, we have had the right to terminate the agreement at will upon 60 days' prior written notice, either in its entirety or on a target-by-target basis. Either party may terminate the agreement, in its entirety or on a target-by-target basis, upon 90 days' prior written notice in the event of the other party's uncured material breach. The agreement may also be terminated by us upon written notice at any time in the event that Cellectis becomes bankrupt or insolvent.

Exclusive License and Collaboration Agreement With Servier

In October 2015, Pfizer entered into an Exclusive License and Collaboration Agreement (Servier Agreement) with Servier to develop, manufacture and commercialize certain allogeneic anti-CD19 CAR products, including UCART19, in the United States with the option to obtain the rights over additional product candidates targeting one additional cancer antigen, including other allogeneic anti-CD19 CAR product candidates. In April 2018, Pfizer assigned the agreement to us pursuant to the Pfizer Agreement.

Under the Servier Agreement, we obtain an exclusive license, with the right to grant sublicenses under certain conditions, under certain of Servier's intellectual property, to develop, manufacture and commercialize certain allogeneic anti-CD19 CAR products, including UCART19, in the field of anti-tumor adoptive immunotherapy in the United States, with an exclusive option to obtain the same rights for additional products in the United States and, if Servier does not elect to pursue development or commercialization of those products in certain markets outside of the United States pursuant to its license described below, outside of the United States as well. Our option for each other product is exercisable upon Servier's delivery to us of an IND-enabling data package for such product. We are generally not required to make any additional payments to Servier to exercise an option, except for products directed at a certain target, for which we are required to pay Servier an option fee in the low tens of millions of dollars range upon exercise. If we opt-in to another product, Servier has the right to obtain rights to such product outside the United States and to share development costs for such product.

The Servier Agreement also provides Servier with an exclusive license, with the right to grant sublicenses under certain conditions, under certain of our intellectual property, to develop, manufacture and commercialize allogeneic adaptive T cell products directed at a certain Allogene-selected target in the field of anti-tumor adoptive immunotherapy outside of the United States.

Under the Servier Agreement, both we and Servier are required to use commercially reasonable efforts to carry out the activities assigned to each of us under an agreed-upon global research and development plan. In addition, we are required to use commercially reasonable efforts to develop and obtain marketing approval in the United States in the field of anti-tumor adoptive immunotherapy for at least one product directed against CD19, and Servier is required to use commercially reasonable efforts to develop and obtain marketing approval in the European Union, and one other country in a group of specified countries outside of the European Union and the United States, in the field of anti-tumor adoptive immunotherapy for at least one allogeneic adaptive T cell product directed against a certain Allogene-selected target.

For products that we are co-developing with Servier, including UCART19, we are responsible for 60% of the development costs and Servier is responsible for 40% of the development costs under the global research and development plan. Subject to certain restrictions, each party has the right to conduct activities that are specific to its territory outside the global research and development plan at such party's sole expense. In addition, each party is solely responsible for commercialization activities in its territory at such party's sole expense.

Pfizer made an upfront, non-refundable payment of $29.0 million to Servier. We are required to make milestone payments to Servier upon successful completion of regulatory and sales milestones on a target-by-target basis. For products directed against CD19, including UCART19, we are obligated to pay Servier

aggregate potential payments of up to $137.5 million upon successful completion of various regulatory milestones, and aggregate potential payments of up to $78.0 million upon successful completion of various sales milestones. The total potential payments that we are obligated to make under the Servier Agreement upon successful completion of regulatory and sales milestones are $381.5 million, including the aforementioned CD19-related milestone payments. Similarly, Servier is required to make milestone payments upon successful completion of regulatory and sales milestones for products directed at the Allogene-selected target that achieves such milestones. The total potential payments that Servier is obligated to make to us under the Servier Agreement upon successful completion of regulatory and sales milestones are $42 million and €70.5 million ($82.3 million), respectively. The foregoing milestones are subject to certain adjustments if we obtain rights for certain products outside of the United States upon Servier's election not to pursue such rights.

Each party is also eligible to receive tiered royalties on annual net sales in countries within the paying party's respective territory of any licensed products that are commercialized by such party. The royalty rates range from the low tens to the high teen percentages. Such royalties may be reduced for interchangeable drug entry, expiration of patent rights and amounts paid pursuant to licenses of third party patents. The royalty obligation for each party with respect to a given licensed product in a given country in each party's respective territory, which we refer to as the Servier Royalty Term, begins upon the first commercial sale of such product in such country and ends after a defined number of years.

Unless earlier terminated in accordance with the Servier Agreement, the Servier Agreement will continue, on a licensed product-by-licensed product and country-by-country basis, until the Servier Royalty Term with respect to the sale of such licensed product in such country expires. In addition, the agreement can be terminated (i) by either party for the other party's material breach that remains uncured for 90 days (or 30 days in the event of failure to pay) after written notice, (ii) by either party for certain insolvency-related events, (iii) by the licensed party for convenience on a licensed product-by-licensed product basis, at specified times with respect to the certain licensed products, upon 90 days' written notice and (iv) by the licensed party for safety reasons upon 30 days' written notice after consulting with the licensing party with respect to such safety reasons. In addition, the agreement will terminate immediately with respect to a licensed product if Cellectis terminates certain agreements that cover the relevant intellectual property licensed under the Servier Agreement.

Intellectual Property

Our commercial success depends in part on our ability to obtain and maintain proprietary protection for our most advanced product candidate, UCART19, our other product candidates, ALLO-647, ALLO-501 and ALLO-715, future product candidates, as well as novel discoveries, product development technologies, and know-how. Our commercial success also depends in part on our ability to operate without infringing on the proprietary rights of others and to prevent others from infringing our proprietary rights. Our policy is to develop and maintain protection of our proprietary position by, among other methods, filing or in-licensing U.S. and foreign patents and applications related to our technology, inventions, and improvements that are important to the development and implementation of our business.

We also rely on trademarks, trade secrets, know-how, continuing technological innovation, confidentiality agreements, and invention assignment agreements to develop and maintain our proprietary position. The confidentiality agreements are designed to protect our proprietary information and the invention assignment agreements are designed to grant us ownership of technologies that are developed for us by our employees, consultants, or other third parties. We seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in our agreements and security measures, either may be breached, and we may not have adequate remedies. In addition, our trade secrets may otherwise become known or independently discovered by competitors.

With respect to both licensed and company-owned intellectual property, 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 filed by us in the future, nor can we be sure that any of our existing patents or any patents that may be granted to us in the future will be commercially useful in protecting our commercial products and methods of using and manufacturing the same.

We are actively building our intellectual property portfolio around our product candidates and our discovery programs, based on our own intellectual property as well as licensed intellectual property. Following the execution of the Pfizer Agreement, we are the owners of, co-owners of, or the licensee of multiple patents and patent applications in the United States and worldwide. These licensed assets include rights to the Cellectis TALEN gene-editing technology to engineer T cells that lack functional TCRs and to inactivate the CD52 gene in donor cells. We have exclusive worldwide rights to these patents for certain antigen targets, including BCMA, and have U.S. rights to these patents for CD19. Our patent rights are composed of patents and pending patent applications that are solely owned by us, co-owned with Servier, co-owned with Cellectis, exclusively licensed from Pfizer, exclusively licensed from Servier, or exclusively licensed from Cellectis.

Our patent portfolio includes protection for our lead product candidates, UCART19, ALLO-501 and ALLO-715, as well as our other research-stage candidates. With respect to UCART19 and ALLO-501, we have an exclusive license from Servier in the United States to patent rights covering composition of matter and methods of making and use covering UCART19 and ALLO-501. With respect to ALLO-715, we have an exclusive license from Pfizer to patent rights covering ALLO-715 in the United States and in foreign jurisdictions. These rights include composition of matter protection for ALLO-715 and methods of making and using ALLO-715. More generally, our patent portfolio and filing strategy is designed to provide multiple layers of protection by pursuing claims directed toward: (1) antigen binding domains directed to the targets of our product candidates; (2) CAR constructs used in our product candidates; (3) methods of treatment for therapeutic indications; (4) manufacturing processes, preconditioning methods, and dosing regimens; and (5) reducing GvHD, and methods for genetically engineering immune cells suitable for allogeneic use.

The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In most countries in which we file, the patent term is 20 years from the date of filing of the first non-provisional application to which priority is claimed. In the United States, patent term may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the United States Patent and Trademark Office in granting a patent, or may be shortened if a patent is terminally disclaimed over an earlier-filed patent. In the United States, the term of a patent that covers an FDA-approved drug may also be eligible for a patent term extension of up to five years under the Hatch-Waxman Act, which is designed to compensate for the patent term lost during the FDA regulatory review process. The length of the patent term extension is calculated based on the length of time it takes for regulatory review. A patent term extension under the Hatch-Waxman Act cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval and only one patent applicable to an approved drug may be restored. Moreover, a patent can only be restored once, and thus, if a single patent is applicable to multiple products, it can only be extended based on one product. Similar provisions are available in Europe and certain other foreign jurisdictions to extend the term of a patent that covers an approved drug.

Competition

Our products will compete with novel therapies developed by biopharmaceutical companies, academic research institutions, governmental agencies and public and private research institutions, in addition to standard of care treatments.

Novartis and Kite were the first to achieve FDA approval for autologous T cell therapies. In August 2017, Novartis obtained FDA approval to commercialize Kymriah, the treatment of children and young adults with

B-cell ALL that is refractory or has relapsed at least twice. In May 2018, Kymriah received FDA approval for adults with R/R DLBCL. In October 2017, Kite obtained FDA approval to commercialize Yescarta, the first CAR T cell product candidate for the treatment of adult patients with R/R large B-cell lymphoma. Kite has published data on Yescarta in ALL as well. Juno Therapeutics, Inc. (Juno), a subsidiary of Celgene, has published data on its anti-CD19 CAR therapy, JCAR019. bluebird bio, Inc. (bluebird) was the first company to publish data on an anti-BCMA CAR therapy, bb2121, in multiple myeloma. Data can be found in the Competitor Data section below.

Due to the promising therapeutic effect of T cell therapies in clinical trials, we anticipate increasing competition from existing and new companies developing these therapies, as well as in the development of allogeneic T cell therapies.

Potential cell therapy competitors include:

- *Allogeneic T cell therapy competition*: Celyad S.A., CRISPR Therapeutics AG, Fate Therapeutics Inc., Intellia Therapeutics, Inc., Gilead (acquired Kite), Poseida Therapeutics, Inc., Precision Biosciences, Inc. and Sangamo Therapeutics, Inc. Additionally, Cellectis has several fully-owned allogeneic CAR programs that will compete with programs that fall outside our agreement with Cellectis.
- *Autologous T cell therapy competition*: Autolus Therapeutics plc, bluebird, Gilead, Novartis, Celgene (acquired Juno) and Tmunity Therapeutics, Inc.
- *Cell-therapy competition*: Atara Biotherapeutics, Inc., Adaptimmune Therapeutics PLC, and Celyad S.A.

Competition will also arise from non-cell based immune and other pursued by small-cap biotechnology and large-cap pharmaceutical companies including Amgen Inc., AstraZeneca plc, Bristol-Myers Squibb Company, Incyte Corporation, Merck & Co., Inc., and F. Hoffmann-La Roche AG.

Many of our competitors, either alone or with their collaboration partners, have significantly greater financial resources and expertise in research and development, pre-clinical testing, clinical trials, manufacturing, and marketing than we do. Future collaborations and mergers and acquisitions may result in further resource concentration among a smaller number of competitors.

Our commercial potential could be reduced or eliminated if our competitors 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 also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market or make our development more complicated. The key competitive factors affecting the success of all of our programs are likely to be efficacy, safety, and convenience.

These competitors may also vie for a similar pool of qualified scientific and management talent, sites and patient populations for clinical trials, as well as for technologies complementary to, or necessary for, our programs.

Competitor Data

Kymriah (Novartis) – ALL

In August 2017, tisagenlecleucel (Kymriah) was approved for pediatric and young adults with R/R B-cell precursor ALL based on data from an open-label, multicenter single-arm trial. In total, 107 patients were screened, 88 were enrolled, 68 were dosed, and 63 were evaluable for efficacy. Nine percent of the enrolled patients did not receive the product due to manufacturing failure. Six other patients died awaiting their infusion,

and 3 experienced an adverse event that precluded receiving tisagenlecleucel. Among the 63 evaluable patients, 52 (83%) achieved CR/CRi, all of which were MRD-negative. Grade 3 or greater CRS and neurotoxic events occurred in 47% (n=32) and 15% (n=10) of dosed patients, respectively. Nine (17%) of the 52 responders relapsed within six months and six (12%) underwent stem cell transplantation. *Source: Kymriah BLA and United States product insert.*

Kymriah (Novartis) – Large B-Cell Lymphoma

In May 2018, Kymriah was approved for use in adult patients with R/R large B-cell lymphoma based on data from an open-label, multicenter, single-arm trial. Of the 160 patients enrolled, 106 patients were dosed (66%), including 92 patients who received product manufactured in the United States and were followed for at least three months or discontinued earlier. Eleven out of 160 patients enrolled did not receive Kymriah due to manufacturing failure. Thirty-eight other patients did not receive Kymriah, primarily due to death (n=16), physician decision (n=16), and adverse events (n=3). A retrospectively identified sub-group of 68 patients was evaluable for the major efficacy outcome measures. Twenty-two of these patients (32%) achieved CR while 12 (18%) achieved a partial response. Grade 3 or greater CRS and neurotoxic events occurred in 23% (n=24) and 18% (n=19) of dosed patients, respectively. *Source: Kymriah BLA and United States product insert.*

Yescarta (Kite – Gilead) – DLBCL

In October 2017, axicabtagene ciloleucel (Yescarta) was approved for DLBCL patients who have relapsed within one year of autologous hematopoietic stem cell transplantation and patients who are refractory to two or more lines of salvage therapies. Among the 111 patients enrolled in the Phase 2 ZUMA-1 clinical trial, axicabtagene ciloleucel was successfully manufactured for 110 patients (99%) and administered to 101 patients (91%). Fifty-four percent of the 101 dosed patients (n=55) achieved CR and 28% (n=28) achieved a partial response. Grade 3 or greater CRS and neurotoxic events occurred in 13% (n=13) and 28% (n=28) of patients, respectively. *Source: Neelapu et al., 2017.*

KTE-C19 (Kite – Gilead) – ALL

In 2017 Kite published results from Zuma-3, a Phase 1/2 clinical trial of KTE C19 in adults with high burden R/R ALL. Of the 33 patients enrolled, 29 were dosed with KTE-C19. One patient withdrew consent, two suffered serious adverse events prior to dosing and one was treated under compassionate use. Of the 24 patients evaluable for efficacy by the data cutoff, 17 (71%) patients achieved CR + CRi. All responding patients were MRD-negative. Grade 3 or greater CRS and neurotoxic events occurred in 28% (n=8) and 52% (n=15) of dosed patients, respectively.

In 2017 Kite published results from Zuma-4, a Phase 1 clinical trial of KTE C19 in pediatric and adolescent patients with R/R ALL. Of the eight patients enrolled, seven patients received KTE-C19. There was one manufacturing failure. At the time of data cutoff, 7 (100%) patients achieved either CR + CRh + CRi. All responding patients were MRD-negative. Grade 3 or greater CRS and neurotoxic events occurred in 43% (n=3) and 29% (n=2) of patients, respectively. *Source: ZUMA-4 ESMO 2017 Poster.*

JCAR017 (Juno – Celgene) – ALL

A Phase 1 clinical trial of lisocabtagene maraleucel (JCAR017) in children and young adult patients with R/R B-cell ALL was conducted using a CD19 CAR product of defined CD4/CD8 composition, uniform CAR expression, and limited effector differentiation. Forty-three of forty-five enrolled patients were dosed with treatment. The rate of MRD-CR as measured by multi parameter flow cytometry was 93% (n=40) in patients who received a CAR T cell product and 100% (n=14) in the subset of patients who received fludarabine and cyclophosphamide lymphodepletion. Twenty-three percent (n=10) of patients developed Grade 3 or higher cytokine release syndrome and 21% (n=9) of patients developed Grade 3 or higher neurotoxicity. Eleven patients relapsed within six months and 11 patients underwent consolidative allogeneic HSCT. *Source: Gardner et al., Blood 2017.*

Government Regulation and Product Approval

As a biopharmaceutical company that operates in the United States, we are subject to extensive regulation. Our cell products will be regulated as biologics. With this classification, commercial production of our products will need to occur in registered facilities in compliance with cGMP for biologics. The FDA categorizes human cell- or tissue-based products as either minimally manipulated or more than minimally manipulated, and has determined that more than minimally manipulated products require clinical trials to demonstrate product safety and efficacy and the submission of a BLA for marketing authorization. Our products are considered more than minimally manipulated and will require evaluation in clinical trials and the submission and approval of a BLA before we can market them.

Government authorities in the United States (at the federal, state and local level) and in other countries extensively regulate, among other things, the research, development, testing, manufacturing, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, post-approval monitoring and reporting, marketing and export and import of biopharmaceutical products such as those we are developing. Our product candidates must be approved by the FDA before they may be legally marketed in the United States and by the appropriate foreign regulatory agency before they may be legally marketed in foreign countries. Generally, our activities in other countries will be subject to regulation that is similar in nature and scope as that imposed in the United States, although there can be important differences. Additionally, some significant aspects of regulation in Europe are addressed in a centralized way, but country-specific regulation remains essential in many respects. The process for obtaining regulatory marketing approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources.

U.S. Product Development Process

In the United States, the FDA regulates pharmaceutical and biological products under the Federal Food, Drug and Cosmetic Act (FDCA), the Public Health Service Act (PHSA) and their implementing regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval, may subject an applicant to administrative or judicial sanctions. FDA sanctions could include, among other actions, refusal to approve pending applications, withdrawal of an approval, a clinical hold, warning letters, product recalls or withdrawals from the market, product seizures, total or partial suspension of production or distribution injunctions, fines, refusals of government contracts, restitution, disgorgement or civil or criminal penalties. Any agency or judicial enforcement action could have a material adverse effect on us. The process required by the FDA before a biological product may be marketed in the United States generally involves the following:

- completion of nonclinical laboratory tests and animal studies according to good laboratory practices (GLPs) and applicable requirements for the humane use of laboratory animals or other applicable regulations;
- submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- approval by an independent Institutional Review Board (IRB) or ethics committee at each clinical site before the trial is commenced;
- performance of adequate and well-controlled human clinical trials according to the FDA's regulations commonly referred to as good clinical practices (GCPs) and any additional requirements for the protection of human research patients and their health information, to establish the safety and efficacy of the proposed biological product for its intended use;

- submission to the FDA of a BLA for marketing approval that includes substantial evidence of safety, purity, and potency from results of nonclinical testing and clinical trials;
- satisfactory completion of an FDA Advisory Committee review, if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities where the biological product is produced to assess compliance with cGMP, to assure that the facilities, methods and controls are adequate to preserve the biological product's identity, strength, quality and purity and, if applicable, the FDA's current good tissue practices (GTPs) for the use of human cellular and tissue products;
- potential FDA audit of the nonclinical study and clinical trial sites that generated the data in support of the BLA; and
- FDA review and approval, or licensure, of the BLA.

Before testing any biological product candidate, including our product candidates, in humans, the product candidate enters the preclinical testing stage. Preclinical tests, also referred to as nonclinical studies, include laboratory evaluations of product chemistry, toxicity and formulation, as well as animal studies to assess the potential safety and activity of the product candidate. The conduct of the preclinical tests must comply with federal regulations and requirements including GLPs. The clinical trial sponsor must submit the results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and a proposed clinical protocol, to the FDA as part of the IND. Some preclinical testing may continue even after the IND is submitted. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA raises concerns or questions regarding the proposed clinical trials and places the trial on a clinical hold within that 30-day time period. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. The FDA may also impose clinical holds on a biological product candidate at any time before or during clinical trials due to safety concerns or non-compliance. If the FDA imposes a clinical hold, trials may not recommence without FDA authorization and then only under terms authorized by the FDA. Accordingly, we cannot be sure that submission of an IND will result in the FDA allowing clinical trials to begin, or that, once begun, issues will not arise that suspend or terminate such trials.

In addition to the IND submission process, sponsors of certain clinical studies of cells containing recombinant or synthetic nucleic acid molecules, including human gene transfer studies, must comply with the National Institutes of Health's (NIH) Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (NIH Guidelines). The NIH Guidelines set forth the principles and requirements for NIH and institutional oversight of research with recombinant or synthetic nucleic acid molecules, including the standards for investigators and institutions to follow to ensure the safe handling and containment of such molecules. In April 2016, modifications to the NIH Guidelines went into effect, pursuant to which only a subset of human gene transfer protocols are subject to review by the NIH Recombinant DNA Advisory Committee (RAC), a federal advisory committee that provides recommendations regarding research involving recombinant or synthetic nucleic acid molecules. Specifically, under the modified NIH Guidelines, RAC review of the protocol will be required only in exceptional cases where (1) an oversight body such as an Institutional Biosafety Committee (IBC), which provides local review and oversight of research utilizing recombinant or synthetic nucleic acid molecules, or an IRB determines that the protocol would significantly benefit from RAC review, and (2) the protocol (a) uses a new vector, genetic material, or delivery methodology that represents a first-in-human experience and thus presents an unknown risk, and/or (b) relies on preclinical safety data that were obtained using a new preclinical model system of unknown and unconfirmed value, and/or (c) involves a proposed vector, gene construct, or method of delivery associated with possible toxicities that are not widely known and that may render it difficult for oversight bodies to evaluate the protocol rigorously. The RAC review proceedings are public, and reports are posted publicly to the website for the NIH's Office of Biotechnology Activities. Although compliance with the NIH Guidelines is mandatory for research conducted at or sponsored by institutions receiving NIH funding of recombinant or synthetic nucleic acid molecule research, many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them. Independent of RAC review,

the NIH Guidelines also require all human gene transfer protocols subject to the NIH Guidelines to be registered with NIH, with limited exemptions. A study subject to the NIH Guidelines may not begin until the IBC approves the protocol, and the IBC cannot approve the protocol until confirmation from the NIH that such registration is complete. In the event that RAC review is warranted, the protocol registration process cannot be completed until RAC review has taken place.

Clinical trials involve the administration of the biological product candidate to patients under the supervision of qualified investigators, generally physicians not employed by or under the trial sponsor's control. Clinical trials are conducted under protocols detailing, among other things, the objectives of the clinical trial, dosing procedures, subject selection and exclusion criteria, and the parameters to be used to monitor subject safety, including stopping rules that assure a clinical trial will be stopped if certain adverse events should occur. Each protocol and any amendments to the protocol must be submitted to the FDA as part of the IND. Clinical trials must be conducted and monitored in accordance with the FDA's regulations comprising the GCP requirements, including the requirement that all research patients provide informed consent. Further, each clinical trial must be reviewed and approved by an independent IRB at or servicing each institution at which the clinical trial will be conducted. 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. The IRB also approves the form and content of the informed consent that must be signed by each clinical trial subject or his or her legal representative and must monitor the clinical trial until completed. Certain clinical trials involving human gene transfer research also must be overseen by an IBC, a standing committee established under the NIH Guidelines specifically to provide peer review of the safety of research plans, procedures, personnel training and environmental risks of work involving recombinant DNA molecules. IBCs are typically assigned certain review responsibilities relating to the use of recombinant DNA molecules, including reviewing potential environmental risks, assessing containment levels, and evaluating the adequacy of facilities, personnel training, and compliance with the NIH Guidelines. 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, 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 halt the clinical trial 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 ongoing clinical studies and clinical study results to public registries.

Human clinical trials are typically conducted in three sequential phases that may overlap or be combined:

- *Phase 1.* The biological product is initially introduced into healthy human subjects and tested for safety. In the case of some products for severe or life-threatening diseases, especially when the product may be too inherently toxic to ethically administer to healthy volunteers, the initial human testing is often conducted in patients.
- *Phase 2.* The biological product is evaluated in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance, optimal dosage and dosing schedule.
- *Phase 3.* Clinical trials are undertaken to further evaluate dosage, clinical efficacy, potency, and safety in an expanded patient population at geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk to benefit ratio of the product and provide an adequate basis for product labeling.

Post-approval clinical trials, 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, particularly for long-term safety follow-up. During all phases of clinical development, regulatory agencies require extensive monitoring and auditing of all clinical activities, clinical data, and clinical trial investigators. Annual progress reports detailing the results of the clinical trials must be

submitted to the FDA. Written IND safety reports must be promptly submitted to the FDA, and the investigators for serious and unexpected adverse events, any findings from other studies, tests in laboratory animals or *in vitro* testing that suggest a significant risk for human patients, or any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. The sponsor must submit an IND safety report within 15 calendar days after the sponsor determines that the information qualifies for reporting. The sponsor also must notify the FDA of any unexpected fatal or life-threatening suspected adverse reaction within seven calendar days after the sponsor's initial receipt of the information. Phase 1, Phase 2 and Phase 3 clinical trials may not be completed successfully within any specified period, if at all. The FDA or the sponsor or its data safety monitoring board may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research patients are being exposed to an unacceptable health risk, including risks inferred from other unrelated immunotherapy trials. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the biological product has been associated with unexpected serious harm to patients.

Human immunotherapy products are a new category of therapeutics. Because this is a relatively new and expanding area of novel therapeutic interventions, there can be no assurance as to the length of the trial period, the number of patients the FDA will require to be enrolled in the trials in order to establish the safety, efficacy, purity and potency of immunotherapy products, or that the data generated in these trials will be acceptable to the FDA to support marketing approval.

Concurrently with clinical trials, companies usually complete additional studies and must also develop additional information about the physical characteristics of the biological product as well as finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. To help reduce the risk of the introduction of adventitious agents with use of biological products, the PHSA emphasizes the importance of manufacturing control for products whose attributes cannot be precisely defined. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, the sponsor must develop methods for testing the identity, strength, quality, potency and purity of the final biological product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the biological product candidate does not undergo unacceptable deterioration over its shelf life.

U.S. Review and Approval Processes

After the completion of clinical trials of a biological product, FDA approval of a BLA must be obtained before commercial marketing of the biological product. The BLA submission must include results of product development, laboratory and animal studies, human trials, information on the manufacture and composition of the product, proposed labeling and other relevant information. The testing and approval processes require substantial time and effort and there can be no assurance that the FDA will accept the BLA for filing and, even if filed, that any approval will be granted on a timely basis, if at all.

Under the Prescription Drug User Fee Act (PDUFA), as amended, each BLA must be accompanied by a significant user fee. The FDA adjusts the PDUFA user fees on an annual basis. PDUFA also imposes an annual program fee for biological products. Fee waivers or reductions are available in certain circumstances, including a waiver of the application fee for the first application filed by a small business. Additionally, no user fees are assessed on BLAs for products designated as orphan drugs, unless the product also includes a non-orphan indication.

Within 60 days following submission of the application, the FDA reviews a BLA submitted to determine if it is substantially complete before the agency accepts it for filing. The FDA may refuse to file any BLA that it deems incomplete or not properly reviewable at the time of submission and may request additional information. In this event, the BLA must be resubmitted with the additional information. The resubmitted application also is subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins

an in-depth substantive review of the BLA. The FDA reviews the BLA to determine, among other things, whether the proposed product is safe, potent, and/or effective for its intended use, and has an acceptable purity profile, and whether the product is being manufactured in accordance with cGMP to assure and preserve the product's identity, safety, strength, quality, potency and purity. The FDA may refer applications for novel biological products or biological products that present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions. During the biological product approval process, the FDA also will determine whether a Risk Evaluation and Mitigation Strategy (REMS) is necessary to assure the safe use of the biological product. A REMS is a safety strategy to manage a known or potential serious risk associated with a medicine 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. If the FDA concludes a REMS is needed, the sponsor of the BLA must submit a proposed REMS. The FDA will not approve a BLA without a REMS, if required.

Before approving a BLA, the FDA will inspect the facilities at which the product is manufactured. The FDA will not approve the product 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. For immunotherapy products, the FDA also will not approve the product if the manufacturer is not in compliance with the GTPs, to the extent applicable. These are FDA regulations and guidance documents that govern the methods used in, and the facilities and controls used for, the manufacture of human cells, tissue, and cellular and tissue based products (HCT/Ps), which are human cells or tissue intended for implantation, transplant, infusion, or transfer into a human recipient. The primary intent of the GTP requirements is to ensure that cell and tissue based products are manufactured in a manner designed to prevent the introduction, transmission and spread of communicable disease. FDA regulations also require tissue establishments to register and list their HCT/Ps with the FDA and, when applicable, to evaluate donors through screening and testing. Additionally, before approving a BLA, the FDA will typically inspect one or more clinical sites to assure that the clinical trials were conducted in compliance with IND trial requirements and GCP requirements. To assure cGMP, GTP and GCP compliance, an applicant must incur significant expenditure of time, money and effort in the areas of training, record keeping, production, and quality control.

Notwithstanding the submission of relevant data and information, the FDA may ultimately decide that the BLA does not satisfy its regulatory criteria for approval and deny approval. Data obtained from clinical trials are not always conclusive and the FDA may interpret data differently than we interpret the same data. If the agency decides not to approve the BLA in its present form, the FDA will issue a complete response letter that describes all of the specific deficiencies in the BLA identified by the FDA. The deficiencies identified may be minor, for example, requiring labeling changes, or major, for example, requiring additional clinical trials. Additionally, the complete response letter may include recommended actions that the applicant might take to place the application in a condition for approval. If a complete response letter is issued, the applicant may either resubmit the BLA, addressing all of the deficiencies identified in the letter, or withdraw the application.

If a product receives regulatory approval, the approval may be limited to specific diseases and dosages or the indications for use may otherwise be limited, which could restrict the commercial value of the product. Further, the FDA may require that certain contraindications, warnings or precautions be included in the product labeling. The FDA may impose restrictions and conditions on product distribution, prescribing, or dispensing in the form of a risk management plan, or otherwise limit the scope of any approval. In addition, the FDA may require post marketing clinical trials, sometimes referred to as Phase 4 clinical trials, designed to further assess a biological product's safety and effectiveness, and testing and surveillance programs to monitor the safety of approved products that have been commercialized.

In addition, under the Pediatric Research Equity Act (PREA), a BLA or supplement to a BLA must contain data to assess the safety and effectiveness of the product 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 FDA may grant deferrals for submission of data or full or partial waivers. Unless otherwise required by regulation, PREA does not apply to any product for an indication for which orphan designation has been granted. However, if only one indication for a product has orphan designation, a pediatric assessment may still be required for any applications to market that same product for the non-orphan indication(s).

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 generally 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 and 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 a 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 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 product exclusivity, which means that the FDA may not approve any other applications, including a full BLA, to market the same 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. Orphan drug exclusivity does not prevent 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 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.

Expedited Development and Review Programs

The FDA has a fast track program that is intended to expedite or facilitate the process for reviewing new products that meet certain criteria. Specifically, new products 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 and the specific indication for which it is being studied. Unique to a fast track product, the FDA may consider for review sections of the 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 BLA, the FDA agrees to accept sections of the BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the BLA.

Any product, submitted to the FDA for approval, including a product with a fast track designation, may also be eligible for other types of FDA programs intended to expedite development and review, such as priority review and accelerated approval. A product is eligible for priority review if it has the potential to provide safe and effective therapy where no satisfactory alternative therapy exists or a significant improvement in the treatment, diagnosis or prevention of a disease compared to marketed products. The FDA will attempt to direct additional resources to the evaluation of an application for a new product designated for priority review in an

effort to facilitate the review. Additionally, a product may be eligible for accelerated approval. Products 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 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 approval, the FDA may require that a sponsor of a drug or biological product receiving accelerated approval perform adequate and well-controlled post-marketing clinical studies. 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.

In addition, the Food and Drug Administration Safety and Innovation Act (FDASIA), which was enacted and signed into law in 2012, established the breakthrough therapy designation. Breakthrough therapy designation is intended to expedite the development and review of products that treat serious or life-threatening conditions. The designation by FDA requires preliminary clinical evidence that a product candidate, alone or in combination with other drugs and biologics, demonstrates substantial improvement over currently available therapy on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. If the FDA designates a breakthrough therapy, it may take actions appropriate to expedite the development and review of the application, which may include holding meetings with the sponsor and the review team throughout the development of the therapy; providing timely advice to, and interactive communication with, the sponsor regarding the development of the drug to ensure that the development program to gather the nonclinical and clinical data necessary for approval is as efficient as practicable; involving senior managers and experienced review staff, as appropriate, in a collaborative, cross-disciplinary review; assigning a cross-disciplinary project lead for the FDA review team to facilitate an efficient review of the development program and to serve as a scientific liaison between the review team and the sponsor; and considering alternative clinical trial designs when scientifically appropriate, which may result in smaller trials or more efficient trials that require less time to complete and may minimize the number of patients exposed to a potentially less efficacious treatment. Breakthrough therapy designation comes with all of the benefits of fast track designation, which means that the sponsor may file sections of the BLA for review on a rolling basis if certain conditions are satisfied, including an agreement with FDA on the proposed schedule for submission of portions of the application and the payment of applicable user fees before the FDA may initiate a review. The breakthrough therapy designation is a distinct status from both accelerated approval and priority review, which can also be granted to the same product if relevant criteria are met. If a product is designated as breakthrough therapy, FDA will expedite the development and review of such product.

Fast Track designation, priority review and breakthrough therapy designation do not change the standards for approval but may expedite the development or approval process.

Post-Approval Requirements

Any products for which we receive FDA approvals are subject to continuing regulation by the FDA, including, among other things, record-keeping requirements, reporting of adverse experiences with the product, providing the FDA with updated safety and efficacy information, product sampling and distribution requirements, and complying with FDA promotion and advertising requirements, which include, among others, standards for direct-to-consumer advertising, restrictions on promoting products for uses or in patient populations that are not described in the product's approved uses (known as "off-label use"), limitations on industry-sponsored scientific and educational activities, and requirements for promotional activities involving the internet. Although a physician may prescribe a legally available product for an off-label use, if the physicians deems such product to be appropriate in his/her professional medical judgment, a manufacturer may not market or promote off-label uses.

In addition, quality control and manufacturing procedures must continue to conform to applicable manufacturing requirements after approval to ensure the long-term stability of the product. cGMP regulations

require among other things, quality control and quality assurance as well as the corresponding maintenance of records and documentation and the obligation to investigate and correct any deviations from cGMP. Manufacturers and other entities involved in the manufacture and distribution of approved products 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 cGMP and other laws. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain cGMP compliance. Discovery of problems with a product after approval may result in restrictions on a product, manufacturer, or holder of an approved BLA, including, among other things, recall or withdrawal of the product from the market. In addition, changes to the manufacturing process are strictly regulated, and depending on the significance of the change, may require prior FDA approval before being implemented. Other types of changes to the approved product, such as adding new indications and claims, are also subject to further FDA review and approval.

The FDA also may require post-marketing testing, known as Phase 4 testing, and surveillance to monitor the effects of an approved product. Discovery of previously unknown problems with a product or the failure to comply with applicable FDA requirements can have negative consequences, including adverse publicity, judicial or administrative enforcement, warning letters from the FDA, mandated corrective advertising or communications with doctors, and civil or criminal penalties, among others. Newly discovered or developed safety or effectiveness data may require changes to a product's approved labeling, including the addition of new warnings and contraindications, and also may require the implementation of other risk management measures. Also, new government requirements, including those resulting from new legislation, may be established, or the FDA's policies may change, which could delay or prevent regulatory approval of our products under development.

U.S. Marketing Exclusivity

The Biologics Price Competition and Innovation Act (BPCIA) amended the PHSA to authorize the FDA to approve similar versions of innovative biologics, commonly known as biosimilars. A competitor seeking approval of a biosimilar must file an application to establish its molecule as highly similar to an approved innovator biologic, among other requirements. The BPCIA, however, bars the FDA from approving biosimilar applications for 12 years after an innovator biological product receives initial marketing approval. This 12-year period of data exclusivity may be extended by six months, for a total of 12.5 years, if the FDA requests that the innovator company conduct pediatric clinical investigations of the product.

Depending upon the timing, duration and specifics of the FDA approval of the use of our product candidates, some of our U.S. patents, if granted, may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, commonly referred to as the Hatch-Waxman Act. The Hatch-Waxman Act permits a patent restoration term of up to five years, as compensation for patent term lost during product development and the FDA regulatory review process. However, patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. The patent term restoration period is generally one-half the time between the effective date of an IND and the submission date of a BLA plus the time between the submission date of a BLA and the approval of that application. Only one patent applicable to an approved product is eligible for the extension and the application for the extension must be submitted prior to the expiration of the patent. The U.S. Patent and Trademark Office, in consultation with the FDA, reviews and approves the application for any patent term extension or restoration. In the future, we may intend to apply for restoration of patent term for one of our currently owned or licensed patents to add patent life beyond its current expiration date, depending on the expected length of the clinical trials and other factors involved in the filing of the relevant BLA.

Pediatric exclusivity is another type of regulatory 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 trial in accordance with an FDA-issued "Written Request" for such a trial.

Other U.S. Healthcare Laws and Compliance Requirements

In the United States, our activities are potentially subject to regulation by various federal, state and local authorities in addition to the FDA, including but not limited to, the Centers for Medicare and Medicaid Services (CMS), other divisions of the U.S. Department of Health and Human Services (e.g., the Office of Inspector General), the U.S. Department of Justice (DOJ), and individual U.S. Attorney offices within the DOJ, and state and local governments. For example, our business practices, including any future sales, marketing and scientific/educational grant programs may be required to comply with the anti-fraud and abuse provisions of the Social Security Act, the false claims laws, the patient data privacy and security provisions of the Health Insurance Portability and Accountability Act (HIPAA) transparency requirements, and similar state laws, each as amended.

The federal Anti-Kickback Statute prohibits, among other things, any person or entity, from knowingly and willfully offering, paying, soliciting or receiving any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or in return for purchasing, leasing, ordering or arranging for the purchase, lease or order of any item or service reimbursable under Medicare, Medicaid or other federal healthcare programs. The term remuneration has been interpreted broadly to include anything of value. The federal Anti-Kickback Statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on one hand and prescribers, purchasers, and formulary managers on the other. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution. The exceptions and safe harbors are drawn narrowly and practices that involve remuneration that may be alleged to be intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Our practices may not in all cases meet all of the criteria for protection under a statutory exception or regulatory safe harbor.

Additionally, the intent standard under the federal Anti-Kickback Statute was amended by the Patient Protection Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010, collectively, the Affordable Care Act, to a stricter standard such that a person or entity no longer needs to have actual knowledge of the federal Anti-Kickback Statute or specific intent to violate it in order to have committed a violation. Rather, if “one purpose” of the remuneration is to induce referrals, the federal Anti-Kickback Statute is violated. In addition, the Affordable Care Act codified case law that a claim that includes items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal civil False Claims Act (discussed below).

The civil monetary penalties statute imposes penalties against any person or entity who, among other things, is determined to have presented or caused to be presented a claim to, among others, a federal healthcare program that the person knows or should know is for a medical or other item or service that was not provided as claimed or is false or fraudulent.

The federal civil False Claims Act prohibits, among other things, any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to, or approval by, the federal government or knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government. As a result of a modification made by the Fraud Enforcement and Recovery Act of 2009, a claim includes “any request or demand” for money or property presented to the U.S. government. Several pharmaceutical and other healthcare companies are being investigated or, in the past, have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies’ marketing of the product for unapproved, and thus non-reimbursable, uses.

HIPAA created additional federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying, concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services.

Also, many states have similar fraud and abuse statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

We may be subject to data privacy and security regulations by both the federal government and the states in which we conduct our business. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act (HITECH) and their implementing regulations, imposes requirements on certain types of individuals and entities relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to business associates that are independent contractors or agents of covered entities that receive or obtain protected health information in connection with providing a service on behalf of a covered entity. HITECH also created four new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, state laws govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Additionally, the federal Physician Payments Sunshine Act within the Affordable Care Act, and its implementing regulations, require that certain manufacturers of drugs, devices, biological and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) report information related to certain payments or other transfers of value made or distributed to physicians and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, the physicians and teaching hospitals and to report annually certain ownership and investment interests held by physicians and their immediate family members.

In order to distribute products commercially, we must comply with state laws that require the registration of manufacturers and wholesale distributors of drug and biological products in a state, including, in certain states, manufacturers and distributors who ship products into the state even if such manufacturers or distributors have no place of business within the state. Some states also impose requirements on manufacturers and distributors to establish the pedigree of product in the chain of distribution, including some states that require manufacturers and others to adopt new technology capable of tracking and tracing product as it moves through the distribution chain. Several states have enacted legislation requiring pharmaceutical and biotechnology companies to establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, clinical trials and other activities, and/or register their sales representatives, as well as to prohibit pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical and biotechnology companies for use in sales and marketing, and to prohibit certain other sales and marketing practices. All of our activities are potentially subject to federal and state consumer protection and unfair competition laws.

If our operations are found to be in violation of any of the federal and state healthcare laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including without limitation, civil, criminal and/or administrative penalties, damages, fines, disgorgement, exclusion from participation in government programs, such as Medicare and Medicaid, injunctions, private "qui tam" actions brought by individual whistleblowers in the name of the government, or refusal to allow us to enter into government contracts, contractual damages, reputational harm, administrative burdens, diminished profits and

future earnings, additional reporting requirements and/or oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any product candidates for which we obtain regulatory approval. In the United States and markets in other countries, sales of any products for which we receive regulatory approval for commercial sale will depend, in part, on the extent to which third-party payors provide coverage, and establish adequate reimbursement levels for such products. In the United States, third-party payors include federal and state healthcare programs, private managed care providers, health insurers and other organizations. The process for determining whether a third-party payor will provide coverage for a product may be separate from the process for setting the price of a product or for establishing the reimbursement rate that such a payor will pay for the product. Third-party payors may limit coverage to specific products on an approved list, or also known as a formulary, which might not include all of the FDA-approved products for a particular indication. Third-party payors are increasingly challenging the price, examining the medical necessity and reviewing the cost-effectiveness of medical products, therapies and services, in addition to questioning their safety and efficacy. We may need to conduct expensive pharmaco-economic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain the FDA approvals. Our product candidates may not be considered medically necessary or cost-effective. A payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a product does not assure that other payors will also provide coverage for the product. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development.

Different pricing and reimbursement schemes exist in other countries. In the EU, governments influence the price of pharmaceutical products through their pricing and reimbursement rules and control of national health care systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost-effectiveness of a particular product candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines, but monitor and control company profits. The downward pressure on health care costs has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert a commercial pressure on pricing within a country.

The marketability of any product candidates for which we receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide adequate coverage and reimbursement. In addition, emphasis on managed care in the United States has increased and we expect will continue to increase the pressure on healthcare pricing. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Healthcare Reform

In the United States and some foreign jurisdictions, there have been, and continue to be, several 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 ability to profitably sell product candidates for which marketing approval is obtained. Among policy makers and payors in the United States and elsewhere, 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.

For example, the Affordable Care Act has substantially changed healthcare financing and delivery by both governmental and private insurers. Among the Affordable Care Act provisions of importance to the pharmaceutical and biotechnology industries, in addition to those otherwise described above, are the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents apportioned among these entities according to their market share in some government healthcare programs that began in 2011;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program, retroactive to January 1, 2010, to 23.1% and 13% of the average manufacturer price for most branded and generic drugs, respectively, and capped the total rebate amount for innovator drugs at 100% of the Average Manufacturer Price (AMP);
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts, which through subsequent legislative amendments, will be increased to 70%, starting in 2019, off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturers' outpatient drugs to be covered under Medicare Part D;
- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals beginning in 2014 and by adding new mandatory eligibility categories for individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability;
- expansion of the entities eligible for discounts under the 340B Drug Discount Program;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- expansion of healthcare fraud and abuse laws, including the FCA and the Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance;
- 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;
- requirements to report certain financial arrangements with physicians and teaching hospitals;
- a requirement to annually report certain information regarding drug samples that manufacturers and distributors provide to physicians;
- establishment of a Center for Medicare and Medicaid Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending that began on January 1, 2011; and
- a licensure framework for follow on biologic products.

Some of the provisions of the Affordable Care Act have yet to be implemented, and there have been legal and political challenges to certain aspects of the Affordable Care Act. Since January 2017, the current U.S. President has signed two executive orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by the Affordable Care Act. In December 2017, Congress repealed the tax penalty for an individual's failure to maintain Affordable Care Act-mandated health insurance as part of a tax reform bill.

Further, on January 22, 2018, the current U.S. President signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain Affordable Care Act-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. Moreover, the Bipartisan Budget Act of 2018 (BBA), among other things, amends the Affordable Care Act, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole". Congress is continuing to consider legislation that would alter other aspects of the Affordable Care Act. The ultimate content, timing or effect of any healthcare reform legislation on the U.S. healthcare industry is unclear.

We anticipate that the Affordable Care Act, if substantially maintained in its current form, will continue to result in additional downward pressure on coverage and the price that we receive for any approved product, and could seriously harm our business. Any reduction in reimbursement from Medicare and 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 products. Such reforms could have an adverse effect on anticipated revenue from product candidates that we may successfully develop and for which we may obtain regulatory approval and may affect our overall financial condition and ability to develop product candidates.

Further legislation or regulation could be passed that could harm our business, financial condition and results of operations. Other legislative changes have been proposed and adopted since the Affordable Care Act was enacted. For example, in August 2011, President Obama signed into law the Budget Control Act of 2011, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend to Congress proposals in spending reductions. The Joint Select Committee on Deficit Reduction did not achieve a targeted deficit reduction of at least $1.2 trillion for fiscal years 2012 through 2021, triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect beginning on April 1, 2013 and will stay in effect through 2027 unless additional Congressional action is taken. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Additionally, there has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed federal legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs. At the federal level, the U.S. President's administration's budget proposal for fiscal year 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. While any proposed measures will require authorization through additional legislation to become effective, Congress and the U.S. President's administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. Individual states in the United States have also become increasingly active in passing legislation and 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.

The Foreign Corrupt Practices Act

The Foreign Corrupt Practices Act (FCPA) prohibits any U.S. individual or business from paying, offering, or authorizing payment or offering of anything of value, directly or indirectly, to any foreign official, political

party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with accounting provisions requiring the company to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, and to devise and maintain an adequate system of internal accounting controls for international operations.

Additional Regulation

In addition to the foregoing, state and federal laws regarding environmental protection and hazardous substances, including the Occupational Safety and Health Act, the Resource Conservancy and Recovery Act and the Toxic Substances Control Act, affect our business. These and other laws govern our use, handling and disposal of various biological, chemical and radioactive substances used in, and wastes generated by, our operations. If our operations result in contamination of the environment or expose individuals to hazardous substances, we could be liable for damages and governmental fines. We believe that we are in material compliance with applicable environmental laws and that continued compliance therewith will not have a material adverse effect on our business. We cannot predict, however, how changes in these laws may affect our future operations.

Europe / Rest of World Government Regulation

In addition to regulations in the United States, we will be subject to a variety of regulations in other jurisdictions governing, among other things, clinical trials and any commercial sales and distribution of our products. Whether or not we obtain FDA approval of a product, we must obtain the requisite approvals from regulatory authorities in foreign countries prior to the commencement of clinical trials or marketing of the product in those countries. Certain countries outside of the United States have a similar process that requires the submission of a clinical trial application much like the IND prior to the commencement of human clinical trials. In the EU, for example, a clinical trial application must be submitted to each country's national health authority and an independent ethics committee, much like the FDA and IRB, respectively. Once the clinical trial application is approved in accordance with a country's requirements, clinical trial development may proceed. Because biologically sourced raw materials are subject to unique contamination risks, their use may be restricted in some countries.

The requirements and process governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, the clinical trials must be conducted in accordance with GCP and the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki.

To obtain regulatory approval of an investigational drug or biological product under EU regulatory systems, we must submit an MAA. The application used to file the BLA in the United States is similar to that required in the EU, with the exception of, among other things, country-specific document requirements.

For other countries outside of the EU, such as countries in Eastern Europe, Latin America or Asia, the requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, again, the clinical trials must be 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 or our potential collaborators 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.

European Union General Data Protection Regulation

In addition to EU regulations related to the approval and commercialization of our products, we may be subject to the EU's General Data Protection Regulation (GDPR). The GDPR imposes stringent requirements for controllers and processors of personal data of persons in the EU, including, for example, more robust disclosures to individuals and a strengthened individual data rights regime, shortened timelines for data breach notifications, limitations on retention of information, increased requirements pertaining to special categories of data, such as health data, and additional obligations when we contract with third-party processors in connection with the processing of the personal data. The GDPR also imposes strict rules on the transfer of personal data out of the European Union to the United States and other third countries. In addition, the GDPR provides that EU member states may make their own further laws and regulations limiting the processing of personal data, including genetic, biometric or health data.

The GDPR applies extraterritorially, and we may be subject to the GDPR because of our data processing activities that involve the personal data of individuals located in the European Union, such as in connection with our EU clinical trials. Failure to comply with the requirements of the GDPR and the applicable national data protection laws of the EU member states may result in fines of up to €20,000,000 or up to 4% of the total worldwide annual turnover of the preceding financial year, whichever is higher, and other administrative penalties. GDPR regulations may impose additional responsibility and liability in relation to the personal data that we process and we may be required to put in place additional mechanisms to ensure compliance with the new data protection rules.

Employees

As of September 30, 2018, we had 78 full-time employees. Of these employees, 37 hold Ph.D. or M.D. degrees, and 48 are engaged in research, development and technical operations. Substantially all of our employees are located in South San Francisco, California. Our employees are not represented by labor unions or covered by collective bargaining agreements. We consider our relationship with our employees to be good.

Research and Development Expenses

We had no research and development expenses during the period from November 30, 2017 (inception) to December 31, 2017. For the six months ended June 30, 2018, we had $122.5 million in research and development expenses, consisting of $109.4 million of acquired in-process research and development charges associated with the asset acquisition from Pfizer, $4.7 million in external costs for payments to our collaboration partners related to product candidate development activities and manufacturing support for UCART19 clinical trials, $2.3 million for personnel-related costs, and $1.9 million for expenses incurred under the TSA with Pfizer.

Facilities

We occupy approximately 21,544 square feet of office and laboratory space in South San Francisco, California pursuant to our TSA with Pfizer. In August 2018, we entered into a new lease for approximately 68,000 square feet for office and laboratory space in South San Francisco. We expect to complete occupancy in the new facility by the end of the second quarter of 2019. We plan to identify and secure additional office and laboratory space, as well as our own manufacturing facility. One of the manufacturing sites we are evaluating for lease is represented by and may be owned by Bellco Capital LLC or an affiliate thereof (Bellco). Any transaction with Bellco would be subject to review in accordance with our related-person transaction policy described under "Certain Relationships and Related Party Transactions—Policies and Procedures for Transactions with Related Persons." We believe that our existing facilities and other available properties will be sufficient for our needs for the foreseeable future.

Legal Proceedings

From time to time, we may become involved in litigation or other legal proceedings. We are not currently a party to any litigation or legal proceedings that, in the opinion of our management, are likely to have a material adverse effect on our business. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

MANAGEMENT

The following table sets forth information about our executive officers and directors.

Name	Age	Position(s)
Executive Officers		
David Chang, M.D., Ph.D.	58	President, Chief Executive Officer and Director
Eric Schmidt, Ph.D.	50	Chief Financial Officer
Alison Moore, Ph.D.	51	Chief Technical Officer
Non-Employee Directors		
Arie Belldegrun, M.D., FACS	68	Executive Chairman of the Board of Directors
David Bonderman (2)	75	Director
John DeYoung (2)	56	Director
Franz Humer, Ph.D. (1)(2)	72	Director
Joshua Kazam	41	Director
Deborah Messemer (1)(3)	61	Director
Todd Sisitsky (1)(3)	47	Director
Owen Witte, M.D. (3)	69	Director

(1) Member of the audit committee.
(2) Member of the compensation committee.
(3) Member of the nominating and corporate governance committee.

Executive Officers

David Chang, M.D., Ph.D. is a co-founder of Allogene and has served as our President and Chief Executive Officer and as a member of our board of directors since June 2018. Prior to joining us, Dr. Chang served as the Chief Medical Officer and Executive Vice President, Research and Development of Kite from June 2014 until March 2018. Dr. Chang previously held senior positions at Amgen Inc., a biopharmaceutical company, including Vice President, Global Development from July 2006 to May 2014, Senior Director, Oncology-Therapeutics from July 2005 to June 2006 and Director, Medical Sciences from December 2002 to June 2005. Prior to that, he was an Associate Professor at the University of California, Los Angeles School of Medicine. Dr. Chang has served as a member of the Board of Directors of Peloton Therapeutics, Inc., a privately held biopharmaceutical company, since March 2018. He has also served as a Venture Partner of Vida Ventures, LLC since November 2017, and Two River Consulting, LLC since October 2017. Dr. Chang obtained a B.S. in Biology from the Massachusetts Institute of Technology and an M.D. and Ph.D. from Stanford University. Our board of directors believes Dr. Chang's expertise and experience in the life sciences, including his work in immune-oncology and his educational background, provide him with the qualifications and skills to serve on our board of directors.

Eric Schmidt, Ph.D. has served as our Chief Financial Officer since June 2018. Prior to joining us, Dr. Schmidt was a Managing Director and Senior Research Analyst at Cowen and Company, LLC. He joined Cowen as a Research Analyst in 1998 where he covered biotechnology stocks until June 2018. He was previously a Vice President and Research Analyst for UBS Securities. Before joining UBS in 1995, he co-founded Cambridge Biological Consultants, a scientific consulting and research firm. Dr. Schmidt obtained a Bachelor of Arts in Chemistry from the University of Pennsylvania and a Ph.D. in Biology from the Massachusetts Institute of Technology.

Alison Moore, Ph.D. has served as our Chief Technical Officer since June 2018. Prior to joining us, she most recently served as Senior Vice President, Process Development at Amgen Inc. from January 2013 until June

2018. Dr. Moore has previously held senior roles at Amgen in Operations Technology from January 2013 until August 2014, Process and Product engineering from January 2011 until January 2013, and Corporate Manufacturing from August 2008 until December 2010. Prior to these positions, she was Vice President, Site Operations at Amgen's Fremont, California, manufacturing facility, from March 2006 until August of 2008. Before joining Amgen, from 2005 to 2006, Dr. Moore was a Director in Chemistry, Manufacturing and Controls, and Regulatory Affairs at Genentech, Inc. Prior to Genentech, she was a Postdoctoral Research Fellow at the Medical University of Lübeck, Germany. Dr. Moore holds both a bachelor's degree in Pharmacology with Honors and a Ph.D. in Cell Biology from Manchester University, England.

Non-Employee Directors

Arie Belldegrun, M.D., FACS, is a co-founder of Allogene and has served as Executive Chairman of our board of directors since November 2017. From March 2014 until October 2017 Dr. Belldegrun served as the President and Chief Executive Officer of Kite and as a director from June 2009 until October 2017. Dr. Belldegrun currently serves as Chairman of Urogen Pharma, Ltd., a position he has held since December 2012, as Chairman and Partner of Two River Consulting, LLC, a position he has held since June 2009, and as Chairman of the Board of Directors of Kronos Bio, Inc., a position that he has held since June 2017. Dr. Belldegrun has also served as Senior Managing Director of Vida Ventures, LLC since November 2017. Dr. Belldegrun previously served as a director of Teva Pharmaceutical Industries Ltd. from March 2013 until January 2017, Chairman of Arno Therapeutics, Inc. from March 2008 until January 2017, a director of Capricor Therapeutics, Inc. from September 2009 until November 2013, and a director of SonaCare Medical, LLC from October 2009 until October 2014. In 1996, he founded Agensys, Inc., a biotechnology company, where he served as its founding Chairman from 1996 to 2001, and continued to serve on the board until 2007 when it was acquired by Astellas Pharma Inc. Dr. Belldegrun was also the Founding Vice-Chairman of the board of directors and Chairman of the scientific advisory board of Cougar Biotechnology, Inc., a biotechnology company, from 2003 to 2009, when it was acquired by Johnson & Johnson. He is certified by the American Board of Urology and is a Fellow of the American College of Surgeons and the American Association of Genitourinary Surgeons. Dr. Belldegrun is Professor of Urology, holds the Roy and Carol Doumani Chair in Urologic Oncology, and Director of the Institute of Urologic Oncology at the David Geffen School of Medicine at the University of California, Los Angeles, or UCLA. Prior to joining UCLA in October of 1988, he was a research fellow at NCI/NIH in surgical oncology and immunotherapy from July 1985 to August 1988 under Dr. Steven Rosenberg. Dr. Belldegrun received his M.D. from the Hebrew University Hadassah Medical School in Jerusalem before completing his post graduate studies in Immunology at the Weizmann Institute of Science and his residency in Urologic Surgery at Harvard Medical School. Our board of directors believes Dr. Belldegrun's expertise, experience, and track record in forming successful companies in immune oncology as well as his expertise as a urological oncologist provide him with the qualifications and skills to serve on our board of directors.

David Bonderman has served as a member of our board of directors since April 2018. He is a Founding Partner of TPG, a global alternative asset firm, established in 1992. Mr. Bonderman currently serves or has served during the past five years serves on the board of directors of the following public companies: RyanAir Holdings, plc, a major airlines company, of which he has been Chairman since August 1996; China International Capital Corporation Limited (since November 2010) and TPG Pace Holdings Corp. (since April 2017). Mr. Bonderman previously served on the board of directors of the following public companies: Kite (from February 2011 to October 2017); General Motors Company (from July 2009 to June 2014); JSC VTB Bank (from March 2011 to June 2014); CoStar Group, Inc., a commercial real estate information company (from May 1995 to June 2015); Pace Holdings Corp. (f/k/a Paceline Holdings Corp.) (from September 2015 to March 2017); Caesars Entertainment Corporation (from January 2008 to October 2017); Energy Future Holdings Corp. (from October 2007 to March 2018) and TPG Pace Energy Holdings Corp. (from April 2017 to July 2018). Prior to forming TPG in 1992, Mr. Bonderman was Chief Operating Officer of the Robert M. Bass Group, Inc. (RMBG), now doing business as Keystone Group, L.P., in Fort Worth, Texas. Prior to joining RMBG in 1983, Mr. Bonderman was a partner in the law firm of Arnold & Porter in Washington, D.C., where he specialized in corporate, securities, bankruptcy and antitrust litigation. From 1969 to 1970, Mr. Bonderman was a Fellow in

Foreign and Comparative Law in conjunction with Harvard University, and from 1968 to 1969, he was Special Assistant to the U.S. Attorney General in the Civil Rights division. From 1967 to 1968, Mr. Bonderman was Assistant Professor at Tulane University School of Law in New Orleans, Louisiana. Mr. Bonderman holds a bachelor's degree from the University of Washington and a J.D. from Harvard Law School. Mr. Bonderman graduated magna cum laude from Harvard Law School where he was a member of the Harvard Law Review and Sheldon Fellow. Our board of directors believes that Mr. Bonderman's expertise and experience as a director of other public companies and his educational background provide him with the qualifications and skills to serve on our board of directors.

John DeYoung has served as a member of our board of directors since April 2018. Mr. DeYoung is Vice President of Worldwide Business Development for Pfizer's Oncology Business Unit. He is a member of Pfizer's Oncology Leadership Team and its Worldwide Business Development Leadership Team. Mr. DeYoung joined Pfizer in 1991 and has held leadership positions in Finance, Marketing, Commercial Development and Business Development. Mr. DeYoung received his bachelor's degree in business from Michigan State University in 1985 and his MBA from the University of Chicago in 1990. Our board of directors believes Mr. DeYoung's expertise and experience in the life sciences and his financial background provide him with the qualifications and skills to serve on our board of directors.

Franz Humer, Ph.D. has served as a member of our board of directors since April 2018. Dr. Humer is Chairman of the board of directors of the International Centre for Missing and Exploited Children and Chairman of the Humer Foundation. Dr. Humer previously served as a member of the board of directors of Kite from September 2015 until October 2017. He has also served as an independent director of Citigroup Inc. since 2012, and Chugai Pharmaceuticals Ltd. (Japan) since 2002. Dr. Humer also serves as a director of Bial Pharmaceuticals (Portugal), WISeKey (Cyber Security Company, Switzerland) and as a member of the International Advisory Board of Allianz SE. He served as Chairman of Diageo plc from 2005 to 2017. In addition, Dr. Humer served as Head of Pharmaceuticals and then as Chief Operating Officer of F. Hoffmann-La Roche Ltd. from 1996 to 1998, prior to serving as Chief Executive Officer of Roche Group from 1998 to 2001 and later as chairman and Chief Executive Officer from 2001 to 2008. His tenure as Chairman of Roche Holding Ltd. extended from 2008 to 2014. Before joining Roche Group, he served on the board of Glaxo Holdings plc and was responsible for research, business development, manufacturing, commercial strategy, and all non-US operations for 13 years. In 1973, Dr. Humer joined Schering Plough Corporation where he held various General Management positions in Latin America and Europe. Dr. Humer attended the University of Innsbruck, where he obtained a Ph.D. in Law, and INSEAD in Fontainebleau, where he obtained an MBA. Our board of directors believes that Dr. Humer's expertise and experience in life sciences, his experience as a director of other companies and his educational background provide him with the qualifications and skills to serve on our board of directors.

Joshua Kazam has served as a member of our board of directors since November 2017. Mr. Kazam is one of our co-founders and served as our President from November 2017 until June 2018. He was a founder of Kite and served as a member of Kite's board of directors from Kite's inception in June 2009 until October 2017. Mr. Kazam also served as Kite's President until September 2010. In June 2009, Mr. Kazam co-founded Two River Consulting, LLC, a life-science consulting and investment firm. Since October 2005, he has also served as an officer and director and is the co-owner of Riverbank Capital Securities, Inc., a FINRA member broker dealer. From 2002 to 2004, Mr. Kazam served as the Director of Investment Management for the Orion Biomedical Fund, a private equity fund focused on biotechnology investments. Mr. Kazam has served on the board of directors of Capricor Therapeutics, Inc., a publicly reporting biotechnology company, since May 2005, and Vision Path, Inc. (d/b/a Hubble Contacts) since May 2016, Kronos Bio, Inc. since June 2017 and Platinum Eagle Acquisition Corp., a blank check company formed for the purpose of effecting a business combination with one or more businesses, since January 2018. Mr. Kazam served on the board of directors of Velcera, Inc. from 2003 until it was acquired by Perrigo Company plc in 2013. He is also the co-founder and has served on the board of directors of Veterinary Prime, Inc. since its inception in February 2015 and has served as the President of Desert Flower Foundation since June 2016. Mr. Kazam received his bachelor's degree in Entrepreneurial Management from the Wharton School of

the University of Pennsylvania and is a Member of the Wharton School's Undergraduate Executive Board. Our board of directors believes Mr. Kazam's expertise and experience in the life sciences and venture capital industries and his educational background provide him with the qualifications and skills to serve on our board of directors.

Deborah Messemer has served as a member of our board of directors since September 2018. Ms. Messemer is a certified public accountant and joined KPMG LLP (KPMG), the U.S. member firm of KPMG International, in 1982 and was admitted into the partnership in 1995. Most recently, Ms. Messemer served as the Managing Partner of KPMG's Bay Area and Northwest region until July 2018. In that role, she was responsible for leading over 3,000 team members in 10 offices across all functions, including audit, tax and advisory. Ms. Messemer spent the majority of her career in KPMG's audit practice as an audit engagement partner serving public and private clients in a variety of industry sectors. In addition to audit signing responsibilities, she has significant experience in SEC filings, due diligence, initial public offerings, mergers and acquisitions, and internal controls over financial reporting. Ms. Messemer is a member of the National Association of Corporate Directors and the San Francisco Chapter of Women Corporate Directors. She has served extensively on non-profit and advisory boards including the Bay Area Council, the San Francisco Committee on Jobs, the California Chamber of Commerce, the San Francisco Chamber of Commerce, the UC Berkeley Fisher Center Policy Advisory Board, San Francisco Ballet, and Posse. Ms. Messemer received a bachelor's degree in accounting from the University of Texas at Arlington. Our board of directors believes Ms. Messemer's expertise in the accounting and finance industry, her experience advising public companies and her education provide her with the qualifications and skills to serve on our board or directors.

Todd Sisitsky has served as a member of our board of directors since April 2018. Mr. Sisitsky is Managing Partner of TPG Capital, where he co-leads the firm's investment activities in healthcare services and pharmaceutical/medical device sectors. He has played leadership roles in connection with TPG's investments in companies such as Aptalis Pharma, a GI-focused specialty pharmaceutical company, Biomet, a broad-based orthopedic product manufacturer, Exactech, an orthopedic implant manufacturer with a focus on extremities, hips and knees, Fenwal Transfusion Therapies, a blood product technologies business, IASIS Healthcare, a Tennessee-based acute care hospital company, Surgical Care Affiliates, an ambulatory surgery center business, HealthScope, a hospital and pathology company based in Australia, IMS Health, a leading global data services and consulting business to several segments of the healthcare industry, Immucor, a leading automated blood screening and testing business, and Par Pharmaceutical Companies, Inc. Mr. Sisitsky currently serves as director of Endo International plc, a position he has held since April 2016, and director of IQVIA Holdings, Inc., a position he has held since April 2018. Mr. Sisitsky previously served as a director of Par Pharmaceutical Companies, Inc. from September 2012 to September 2015, director of IMS Health Holdings, Inc. from February 2010 until October 2016 and Surgical Care Affiliates, Inc. from October 2013 until March 2017. Mr. Sisitsky also serves on the board of directors of the global not-for-profit organization, the Campaign for Tobacco Free Kids, as well as on the Dartmouth Medical School Board of Advisors, where he serves as chairman. Prior to joining TPG in 2003, Mr. Sisitsky worked at Forstmann Little & Company and Oak Hill Capital Partners. He received an MBA from the Stanford Graduate School of Business and earned his bachelor's degree from Dartmouth College. Our board of directors believes Mr. Sisitsky's expertise and experience in life science investing and the finance industry provide him with the qualifications and skills to serve on our board of directors.

Owen Witte, M.D., has served as a member of our board of directors since April 2018. Dr. Witte previously served as a member of the board of directors of Kite from March 2017 until October 2017. Dr. Witte joined the UCLA faculty in 1980, where he is presently a University Professor of microbiology, immunology and molecular genetics, the UCLA David Saxon Presidential Chair in Developmental Immunology and the director of the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research. Dr. Witte was appointed a University Professor by the University of California Board of Regents, an honor reserved for scholars of the highest international distinction. Dr. Witte is a member of the National Academy of Sciences, the American Academy of Arts and Sciences, and the National Academy of Medicine. Dr. Witte currently serves on several

editorial and advisory boards. He previously served on the board of directors for the American Association for Cancer Research. He was appointed by President Obama to the President's Cancer Panel. Dr. Witte holds a bachelor's degree from Cornell University and an M.D. from Stanford University. He completed postdoctoral research at the Massachusetts Institute of Technology. Our board of directors believes Dr. Witte's expertise and experience in cancer research, his experience in academia and his educational background provide him with the qualifications and skills to serve on our board of directors.

Scientific Advisory Board

We have established a scientific advisory board comprised of scientific leaders that regularly provides advice and input on matters related to our research and development programs. Our scientific advisory board consists of experts across a range of key disciplines relevant to our programs and science. We intend to continue to leverage the broad expertise of our advisors by seeking their counsel on important topics relating to our research and development programs. Some members of our scientific advisory board have entered into consulting agreements with us covering their respective confidentiality, non-disclosure and proprietary rights matters and own or have owned shares of our common stock or options to purchase shares of our common stock.

All of the scientific advisors are employed by or have consulting arrangements with other entities and devote only a small portion of their time to us. Our current advisors are:

Name	Titles
Ton Schumacher, Ph.D. (Chair)	Senior Member at the Netherlands Cancer Institute, Professor of Immunotechnology at Leiden University Medical Center, Postdoctoral Fellow at the Massachusetts Institute of Technology, Postdoctoral Researcher at the Whitehead Institute, founder of three biotechnology companies in the area of immuno-oncology
Donald B. Kohn, M.D.	Professor of Microbiology, Immunology and Molecular Genetics and Pediatrics, Director of the UCLA Human Gene and Stem Cell Therapy Program, member of the Broad Stem Cell Research Center and the Jonsson Comprehensive Cancer Center, pediatric intern and resident at the University of Wisconsin Hospitals, medical staff fellowship in the Metabolism Branch of the National Cancer Institute. Professor and Head of the Division of Research Immunology/Bone Marrow Transplantation at the Children's Hospital Los Angeles, USC Keck School of Medicine, President of the American Society of Gene and Cell Therapy and the Clinical Immunology Society
Crystal Mackall, M.D.	Endowed Professor of Pediatrics and Medicine at the Stanford University School of Medicine, Director of the Parker Institute for Cancer Immunotherapy at Stanford, Founding Director of the Stanford Center for Cancer Cell Therapy and Associate Director of the Stanford Cancer Institute, Head of the Immunology Section and Chief of the Pediatric Oncology Branch at the National Institute of Health's National Cancer Institute, co-leader of StandUp2Cancer, St. Baldrick's Foundation and NCI Pediatric Dream Team
Matthew Porteus, M.D., Ph.D.	Associate Professor of Pediatrics in the Department of Pediatrics, Divisions of Hematology/Oncology and Human Gene Therapy at Stanford University School of Medicine, intern and resident in pediatrics at Boston Children's Hospital, pediatric hematology/oncology fellow in the combined Boston Children's Hospital/Dana

Name	Titles
	Farber Cancer Institute program, postdoctoral fellow at the Massachusetts Institute of Technology and Caltech, independent faculty member at UT Southwestern in the Departments of Pediatrics and Biochemistry, Associate Professor at Stanford University
Owen Witte, M.D.	Investigator of the Howard Hughes Medical Institute, Professor of Microbiology, Immunology and Molecular Genetics and Medical Pharmacology at UCLA, where he holds the President's Chair in Developmental Immunology at UCLA's David Geffen School of Medicine, Founding Director of the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA, member of the National Academy of Science and National Academy of Medicine, postdoctoral fellow at the Massachusetts Institute of Technology Center for Cancer Research, predoctoral fellow Stanford University

Board Composition

Our business and affairs are organized under the direction of our board of directors, which currently consists of 9 members. The primary responsibilities of our board of directors are to provide oversight, strategic guidance, counseling and direction to our management. Our board of directors meets on a regular basis and on an ad hoc basis as required.

Our board of directors has determined that all of our directors other than Dr. Belldegrun, Mr. Kazam and Dr. Chang are independent directors, as defined by Rule 5605(a)(2) of the Nasdaq Listing Rules.

In accordance with the terms of our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective immediately prior to and upon the closing of this offering, respectively, we will divide our board of directors into three classes, as follows:

- Class I, which will consist of Dr. Belldegrun, Dr. Chang and Mr. Bonderman, whose terms will expire at our annual meeting of stockholders to be held in 2019;
- Class II, which will consist of Dr. Witte, Ms. Messemer and Mr. Sisitky, whose terms will expire at our annual meeting of stockholders to be held in 2020; and
- Class III, which will consist of Dr. Humer, Mr. Kazam and Mr. DeYoung, whose terms will expire at our annual meeting of stockholders to be held in 2021.

At each annual meeting of stockholders to be held after the initial classification, the successors to directors whose terms then expire will serve until the third annual meeting following their election and until their successors are duly elected and qualified. The authorized size of our board of directors is currently nine members. The authorized number of directors may be changed only by resolution of our board of directors. Any additional directorships resulting from an increase in the number of directors will be distributed between the three classes so that, as nearly as possible, each class will consist of one-third of the directors. This classification of our board of directors may have the effect of delaying or preventing changes in our control or management. Our directors may be removed for cause by the affirmative vote of the holders of at least 66-2/3% of our voting stock.

Board Leadership Structure

Our board of directors is currently chaired by Dr. Belldegrun, who has authority, among other things, to call and preside over board of directors meetings, to set meeting agendas and to determine materials to be distributed

to the board of directors. Accordingly, the Executive Chairman has substantial ability to shape the work of the board of directors. We believe that separation of the positions of Executive Chairman and Chief Executive Officer reinforces the independence of the board of directors in its oversight of our business and affairs. In addition, we have a separate chair for each committee of our board of directors. The chair of each committee is expected to report annually to our board of directors on the activities of their committee in fulfilling their responsibilities as detailed in their respective charters or specify any shortcomings should that be the case.

In addition, our board of directors has appointed Mr. Bonderman to serve as our lead independent director upon the closing of this offering. As lead independent director, Mr. Bonderman will preside over periodic meetings of our independent directors, serve as a liaison between our Executive Chairman and the independent directors and perform such additional duties as set forth in our bylaws and as our board of directors may otherwise determine and delegate.

Role of the Board in Risk Oversight

The audit committee of our board of directors is primarily responsible for overseeing our risk management processes on behalf of our board of directors. Going forward, we expect that the audit committee will receive reports from management periodically regarding our assessment of risks. In addition, the audit committee reports regularly to our board of directors, which also considers our risk profile. The audit committee and our board of directors focus on the most significant risks we face and our general risk management strategies. While our board of directors oversees our risk management, management is responsible for day-to-day risk management processes. Our board of directors expects management to consider risk and risk management in each business decision, to proactively develop and monitor risk management strategies and processes for day-to-day activities and to effectively implement risk management strategies adopted by the audit committee and our board of directors. We believe this division of responsibilities is the most effective approach for addressing the risks we face and that our board of directors' leadership structure, which also emphasizes the independence of our board of directors in its oversight of its business and affairs, supports this approach.

Board Committees

Our board of directors has established an audit committee, a compensation committee and a nominating and corporate governance committee.

Audit Committee

Our audit committee consists of Dr. Humer, Ms. Messemer and Mr. Sisitsky. Our board of directors has determined that each of the members of our audit committee satisfies the Nasdaq Stock Market and SEC independence requirements. Dr. Humer serves as the chair of our audit committee. The functions of this committee include, among other things:

- evaluating the performance, independence and qualifications of our independent auditors and determining whether to retain our existing independent auditors or engage new independent auditors;
- reviewing and approving the engagement of our independent auditors to perform audit services and any permissible non-audit services;
- monitoring the rotation of partners of our independent auditors on our engagement team as required by law;
- prior to engagement of any independent auditor, and at least annually thereafter, reviewing relationships that may reasonably be thought to bear on their independence, and assessing and otherwise taking the appropriate action to oversee the independence of our independent auditor;
- reviewing our annual and quarterly financial statements and reports, including the disclosures contained under the caption "Management's Discussion and Analysis of Financial Condition and

Results of Operations," and discussing the statements and reports with our independent auditors and management;

- reviewing, with our independent auditors and management, significant issues that arise regarding accounting principles and financial statement presentation and matters concerning the scope, adequacy and effectiveness of our financial controls;
- reviewing with management and our independent auditors any earnings announcements and other public announcements regarding material developments;
- establishing procedures for the receipt, retention and treatment of complaints received by us regarding financial controls, accounting or auditing matters and other matters;
- preparing the report that the SEC requires in our annual proxy statement;
- reviewing and providing oversight of any related-person transactions in accordance with our related person transaction policy and reviewing and monitoring compliance with legal and regulatory responsibilities, including our code of business conduct and ethics;
- reviewing our major financial risk exposures, including the guidelines and policies to govern the process by which risk assessment and risk management are implemented;
- reviewing on a periodic basis our investment policy; and
- reviewing and evaluating on an annual basis the performance of the audit committee and the audit committee charter.

Our board of directors has determined that Ms. Messemer qualifies as an audit committee financial expert within the meaning of SEC regulations and meets the financial sophistication requirements of the Nasdaq Listing Rules. In making this determination, our board has considered Ms. Messemer's prior experience, business acumen and independence. Both our independent registered public accounting firm and management periodically meet privately with our audit committee.

We believe that the composition and functioning of our audit committee complies with all applicable requirements of the Sarbanes-Oxley Act, and all applicable SEC and Nasdaq rules and regulations. We intend to comply with future requirements to the extent they become applicable to us.

Compensation Committee

Our compensation committee consists of Mr. Bonderman, Dr. Humer and Mr. DeYoung, Mr. Bonderman serves as the chair of our compensation committee. Our board of directors has determined that each of the members of our compensation committee is a non-employee director, as defined in Rule 16b-3 promulgated under the Exchange Act and satisfies the Nasdaq Stock Market independence requirements. The functions of this committee include, among other things:

- reviewing, modifying and approving (or if it deems appropriate, making recommendations to the full board of directors regarding) our overall compensation strategy and policies;
- reviewing and making recommendations to the full board of directors regarding the compensation and other terms of employment of our executive officers;
- reviewing and approving (or if it deems it appropriate, making recommendations to the full board of directors regarding) performance goals and objectives relevant to the compensation of our executive officers and assessing their performance against these goals and objectives;
- reviewing and approving (or if it deems it appropriate, making recommendations to the full board of directors regarding) the equity incentive plans, compensation plans and similar programs advisable for us, as well as modifying, amending or terminating existing plans and programs;

- evaluating risks associated with our compensation policies and practices and assessing whether risks arising from our compensation policies and practices for our employees are reasonably likely to have a material adverse effect on us;
- reviewing and making recommendations to the full board of directors regarding the type and amount of compensation to be paid or awarded to our non-employee board members;
- establishing policies with respect to votes by our stockholders to approve executive compensation as required by Section 14A of the Exchange Act and determining our recommendations regarding the frequency of advisory votes on executive compensation, to the extent required by law;
- reviewing and assessing the independence of compensation consultants, legal counsel and other advisors as required by Section 10C of the Exchange Act;
- administering our equity incentive plans;
- establishing policies with respect to equity compensation arrangements;
- reviewing the competitiveness of our executive compensation programs and evaluating the effectiveness of our compensation policy and strategy in achieving expected benefits to us;
- reviewing and making recommendations to the full board of directors regarding the terms of any employment agreements, severance arrangements, change in control protections and any other compensatory arrangements for our executive officers;
- reviewing with management and approving our disclosures under the caption "Compensation Discussion and Analysis" in our periodic reports or proxy statements to be filed with the SEC, to the extent such caption is included in any such report or proxy statement;
- preparing the report that the SEC requires in our annual proxy statement; and
- reviewing and assessing on an annual basis the performance of the compensation committee and the compensation committee charter.

We believe that the composition and functioning of our compensation committee complies with all applicable requirements of the Sarbanes-Oxley Act, and all applicable SEC and Nasdaq rules and regulations. We intend to comply with future requirements to the extent they become applicable to us.

Nominating and Corporate Governance Committee

Our nominating and corporate governance committee consists of Ms. Messemer, Mr. Sisitsky and Dr. Witte. Our board of directors has determined that each of the members of this committee satisfies the Nasdaq Stock Market independence requirements. Dr. Witte serves as the chair of our nominating and corporate governance committee. The functions of this committee include, among other things:

- identifying, reviewing and evaluating candidates to serve on our board of directors consistent with criteria approved by our board of directors;
- determining the minimum qualifications for service on our board of directors;
- evaluating director performance on the board and applicable committees of the board and determining whether continued service on our board is appropriate;
- evaluating, nominating and recommending individuals for membership on our board of directors;
- evaluating nominations by stockholders of candidates for election to our board of directors;
- considering and assessing the independence of members of our board of directors;
- developing a set of corporate governance policies and principles, including a code of business conduct and ethics, periodically reviewing and assessing these policies and principles and their application and recommending to our board of directors any changes to such policies and principles;

- considering questions of possible conflicts of interest of directors as such questions arise; and
- reviewing and assessing on an annual basis the performance of the nominating and corporate governance committee and the nominating and corporate governance committee charter.

We believe that the composition and functioning of our nominating and corporate governance committee complies with all applicable requirements of the Sarbanes-Oxley Act, and all applicable SEC and Nasdaq rules and regulations. We intend to comply with future requirements to the extent they become applicable to us.

Compensation Committee Interlocks and Insider Participation

None of our current or former executive officers serve as a member of the compensation committee. None of our officers serve, or have served during the last completed fiscal year, on the board of directors or compensation committee, or other committee serving an equivalent function, of any other entity that has one or more of its executive officers serving as a member of our board of directors or our compensation committee. For a description of transactions between us and members of our compensation committee and affiliates of such members, please see "Certain Relationships and Related Party Transactions."

Code of Business Conduct and Ethics

We have adopted a written code of business conduct and ethics that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or person performing similar functions. Following this offering, a current copy of the code will be available on the Corporate Governance section of our website, www.allogene.com.

Limitation of Liability and Indemnification

Our amended and restated certificate of incorporation, which will become effective immediately prior to the closing of this offering, limits the liability of directors to the maximum extent permitted by Delaware law. Delaware law allows a corporation to eliminate the personal liability of directors of a corporation to the corporation and its stockholders for monetary damages for breach of their fiduciary duties as directors, except for liability for any:

- breach of his or her duty of loyalty to the corporation or its stockholders;
- act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- transaction from which the director derived an improper personal benefit.

Our amended and restated certificate of incorporation, which will become effective immediately prior to the closing of this offering, does not eliminate a director's duty of care and, in appropriate circumstances, equitable remedies, such as injunctive or other forms of non-monetary relief, will remain available under Delaware law. These limitations also do not affect a director's responsibilities under any other laws, such as the federal securities laws or other state or federal laws. Our amended and restated bylaws, which will become effective upon the closing of this offering, provide that we will indemnify our directors and executive officers and may indemnify other officers, employees and other agents, to the fullest extent permitted by law. Our amended and restated bylaws, which will become effective upon the closing of this offering, also provide that we are obligated to advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding and also permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in connection with their services to us, regardless of whether our amended and restated bylaws permit such indemnification. We have obtained a policy of directors' and officers' liability insurance.

We have entered, and intend to continue to enter, into separate indemnification agreements with our directors and executive officers, in addition to the indemnification provided for in our amended and restated bylaws. These agreements, among other things, will require us to indemnify our directors and executive officers for certain expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by a director or executive officer in any action or proceeding arising out of their services as one of our directors or executive officers or any other company or enterprise to which the person provides services at our request. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duties. They may also reduce the likelihood of derivative litigation against directors and officers, even though an action, if successful, might benefit us and our stockholders. A stockholder's investment may be harmed to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions.

We believe that these provisions in our amended and restated certificate of incorporation and amended and restated bylaws and these indemnification agreements are necessary to attract and retain qualified persons as directors and officers.

Except as otherwise disclosed under the heading "Legal Proceedings" in the "Business" section of this prospectus, at present, there is no pending litigation or proceeding involving any of our directors or executive officers as to which indemnification is required or permitted, and we are not aware of any threatened litigation or proceeding that may result in a claim for indemnification.

EXECUTIVE AND DIRECTOR COMPENSATION

Our only named executive officer for the year ended December 31, 2017 was Joshua Kazam, our former President. During the period from November 30, 2017 (inception) through December 31, 2017, we did not have any other executive officers.

Summary Compensation Table

Name and principal position	Year	Salary ($)	Bonus ($)	Option awards ($)	All other compensation ($)	Total ($)
Joshua Kazam[1]	2017	—	—	—	—	—
Former President						

(1) Mr. Kazam resigned as our President on June 25, 2018.

Annual Base Salary

Our named executive officer for 2017, Joshua Kazam, did not receive a salary for 2017 .

The base salary of our executive officers is generally determined and approved by our board of directors in connection with the executive officer's commencement of employment.

Bonus Compensation

From time to time our board of directors or compensation committee may approve bonuses for our executive officers based on individual performance, company performance or as otherwise determined to be appropriate. In 2017, our sole named executive officer was not entitled to any target or minimum bonus and no specific performance goals or bonus program were established.

Equity-Based Incentive Awards

Our equity-based incentive awards are designed to align our interests and those of our stockholders with those of our employees and consultants, including our executive officers. The board of directors or an authorized committee thereof is responsible for approving equity grants. As of the date of this prospectus, stock option awards were the only form of equity awards we have granted to any of our executive officers.

We have historically used stock options as an incentive for long-term compensation to our executive officers because the stock options allow our executive officers to profit from this form of equity compensation only if our stock price increases relative to the stock option's exercise price, which exercise price is set at the fair market value of our common stock on the date of grant. We may grant equity awards at such times as our board of directors determines appropriate. Our executives generally are awarded an initial grant in the form of a stock option in connection with their commencement of employment with us. Additional grants may occur periodically in order to specifically incentivize executives with respect to achieving certain corporate goals or to reward executives for exceptional performance.

Prior to this offering, we have granted all stock options pursuant to our Prior Plan. Following this offering, we will grant equity incentive awards under the terms of the 2018 Plan. The terms of our equity plans are described below under "— Equity Benefit Plans."

All options are granted with an exercise price per share that is no less than the fair market value of our common stock on the date of grant of such award. Our stock option awards generally vest over a four-year period and may be subject to acceleration of vesting and exercisability under certain termination and change in control events.

Agreements with Named Executive Officer and Principal Officers

Before his resignation as our President, we did not enter into an employment agreement with our named executive officer. However, we have entered into employment agreements with our current Principal Executive Officer and our current Principal Financial and Accounting Officer. Each of these current officers' employment began after December 31, 2017 and their employment agreements are described below.

David Chang, M.D., Ph.D. We entered into a letter agreement with Dr. Chang, our President and Chief Executive Officer, in June 2018 that governs the current terms of his employment with us. Pursuant to the agreement, Dr. Chang is entitled to an annual base salary of $525,000, is eligible to receive an annual target performance bonus of up to 45% of his base salary, as determined by our board of directors, and was granted initial new hire options to purchase 1,955,625 shares of common stock. Additionally, we entered into a vesting restriction agreement with Dr. Chang in April 2018, pursuant to which the 2,568,142 shares of common stock beneficially owned by Dr. Chang and issued in December 2017 became subject to vesting over a 52-month period commencing in December 2017. Subject to Dr. Chang's continuous service through each vesting date.

Eric Schmidt, Ph.D. We entered into a letter agreement with Dr. Schmidt, our Chief Financial Officer, in June 2018 that governs the current terms of his employment with us. Pursuant to the agreement, Dr. Schmidt is entitled to an annual base salary of $375,000, is eligible to receive an annual target performance bonus of up to 35% of his base salary, as determined by our board of directors, and was granted initial new hire options to purchase 1,464,750 shares of common stock.

Each of the options granted to Drs. Chang and Schmidt are subject to a four-year vesting schedule, with 25% vesting one year after the vesting commencement date and the balance vesting monthly over the remaining 36 months, subject to each individual's continued service through each vesting date.

Each of these current officers' employment is at will and may be terminated by us at any time. Any potential payments and benefits due upon a qualifying termination of employment or a change in control are further described below under "— Potential Payments and Benefits upon Termination or Change in Control."

Potential Payments and Benefits upon Termination or Change in Control

Regardless of the manner in which an executive officer's service terminates, each executive officer is entitled to receive amounts earned during his or her term of service, including unpaid salary and unused vacation, as applicable. In addition, our Board has approved a Change in Control Plan described below.

Change in Control and Severance Benefit Plan

Our current executive officers are entitled to certain severance and change of control payments and benefits pursuant to our change in control and severance benefit plan (Change in Control Plan). The Change in Control Plan provides for a combination of a lump-sum cash severance payment, continued health benefits and accelerated vesting of outstanding equity awards in the event of an involuntary termination without "cause" or a resignation with "good reason," or an involuntary termination. In the event that the involuntary termination occurs within the period commencing three months before and ending 12 months after a change in control, then the participants in the Change in Control Plan are entitled to enhanced severance benefits, as well as accelerated vesting of their outstanding equity compensation awards.

Under the Change in Control Plan, the term "cause" generally means (i) the employee's commission of any crime involving fraud, dishonesty or moral turpitude; (ii) the employee's attempted commission of or participation in a fraud or act of dishonesty against us that results in (or might have reasonably resulted in) material harm to our business; (iii) the employee's intentional, material violation of any contract or agreement between us and the employee or any statutory duty that the employee owes to us; or (iv) the employee's conduct

that constitutes gross insubordination, incompetence or habitual neglect of duties and that results in (or might have reasonably resulted in) material harm to our business. The term "change in control" generally means (1) the acquisition by any person or company of more than 50% of the combined voting power of our then outstanding stock, (2) a merger, consolidation or similar transaction in which our stockholders immediately before the transaction do not own, directly or indirectly, more than 50% of the combined voting power of the surviving entity (or the parent of the surviving entity) in substantially the same proportions as their ownership immediately prior to such transaction, (3) a sale, lease, exclusive license or other disposition of all or substantially all of our assets other than to an entity more than 50% of the combined voting power of which is owned by our stockholders in substantially the same proportions as their ownership of our outstanding voting securities immediately prior to such transaction, or (4) a complete dissolution or liquidation of the company.

The term "good reason" generally means (i) a material reduction of such employee's annual base salary, which is a reduction of at least 10% of such employee's base salary (unless pursuant to a salary reduction program applicable generally to the Company's similarly situated employees); (ii) a material reduction in such employee's authority, duties or responsibilities; (iii) a relocation of such employee's principal place of employment with the Company (or successor to the Company, if applicable) to a place that increases such employee's one-way commute by more than 50 miles as compared to such employee's then-current principal place of employment immediately prior to such relocation (excluding regular travel in the ordinary course of business).

Perquisites, Health, Welfare and Retirement Benefits

Our executive officers, during their employment with us, are eligible to participate in our employee benefit plans, including our medical, dental, group term life, disability and accidental death and dismemberment insurance plans, in each case on the same basis as all of our other employees. In addition, we provide a 401(k) plan to our employees, including our executive officers, as discussed in the section below entitled "— 401(k) Plan."

We generally do not provide perquisites or personal benefits to our executive officers, except in limited circumstances. We do, however, pay the premiums for medical, dental, group term life, disability and accidental death and dismemberment insurance for all of our employees. Our board of directors may elect to adopt qualified or nonqualified benefit plans in the future if it determines that doing so is in our best interests.

401(k) Plan

We maintain a defined contribution employee retirement plan, or 401(k) plan, for our employees. Our executive officers are eligible to participate in the 401(k) plan on the same basis as our other employees. The 401(k) plan is intended to qualify as a tax-qualified plan under Section 401(a) of the Code. The 401(k) plan provides that each participant may contribute up to the lesser of 100% of his or her compensation or the statutory limit, which is $18,000 and $18,500 for calendar years 2017 and 2018, respectively. Participants that are 50 years or older can also make "catch-up" contributions, which in calendar years 2017 and 2018 may be up to an additional $6,000 above the statutory limit. We currently make matching contributions into the 401(k) plan on behalf of participants. Participant contributions are held and invested, pursuant to the participant's instructions, by the plan's trustee.

Nonqualified Deferred Compensation

We do not maintain nonqualified defined contribution plans or other nonqualified deferred compensation plans. Our board of directors may elect to provide our officers and other employees with nonqualified defined contribution or other nonqualified deferred compensation benefits in the future if it determines that doing so is in our best interests.

Equity Benefit Plans

Amended and Restated 2018 Equity Incentive Plan

Our board of directors adopted our 2018 Plan in September 2018 and our stockholders approved our 2018 Plan in October 2018. Our 2018 Plan is a successor to and continuation of our Prior Plan. The 2018 Plan became effective upon the execution of the underwriting agreement related to this offering. No further grants will be made under the Prior Plan.

Stock Awards. Our 2018 Plan provides for the grant of incentive stock options (ISOs) within the meaning of Section 422 of the Code, to employees, including employees of any parent or subsidiary, and for the grant of nonstatutory stock options (NSOs) stock appreciation rights, restricted stock awards, restricted stock unit awards, performance stock awards, performance cash awards and other forms of stock awards to employees, directors and consultants, including employees and consultants of our affiliates.

Authorized Shares. Initially, the maximum number of shares of our common stock that may be issued under our 2018 Plan will be 20,432,250 shares, which is the sum of (1) 8,223,097 new shares, plus (2) the number of shares (not to exceed 12,209,153 shares) (i) that remained available for the issuance of awards under our Prior Plan at the time our 2018 Plan became effective, and (ii) any shares subject to outstanding stock options or other stock awards that were granted under our Prior Plan that terminate or expire prior to exercise or settlement; are forfeited because of the failure to vest; or are reacquired or withheld (or not issued) to satisfy a tax withholding obligation or the purchase or exercise price. In addition, the number of shares of our common stock reserved for issuance under our 2018 Plan will automatically increase on January 1 of each calendar year, starting on January 1, 2019 through January 1, 2028, in an amount equal to 5% of the total number of shares of our capital stock outstanding on the last day of the calendar month before the date of each automatic increase, or a lesser number of shares determined by our board of directors. The maximum number of shares of our common stock that may be issued on the exercise of ISOs under our 2018 Plan is 40,864,500.

Shares subject to stock awards granted under our 2018 Plan that expire or terminate without being exercised in full or that are paid out in cash rather than in shares do not reduce the number of shares available for issuance under our 2018 Plan. If any shares of common stock issued pursuant to a stock award are forfeited back to or repurchased or reacquired by us for any reason, the shares that are forfeited or repurchased or reacquired will revert to and again become available for issuance under the 2018 Plan. Any shares reacquired in satisfaction of tax withholding obligations or as consideration for the exercise or purchase price of a stock award will again become available for issuance under the 2018 Plan.

Plan Administration. Our board of directors, or a duly authorized committee of our board of directors, will administer our 2018 Plan and is referred to as the "plan administrator" herein. Our board of directors may also delegate to one or more of our officers the authority to (1) designate employees (other than officers) to receive specified stock awards and (2) determine the number of shares subject to such stock awards. Under our 2018 Plan, our board of directors has the authority to determine award recipients, grant dates, the numbers and types of stock awards to be granted, the applicable fair market value, and the provisions of each stock award, including the period of exercisability and the vesting schedule applicable to a stock award.

Under the 2018 Plan, the board of directors also generally has the authority to effect, with the consent of any adversely affected participant, (A) the reduction of the exercise, purchase, or strike price of any outstanding award; (B) the cancellation of any outstanding award and the grant in substitution therefore of other awards, cash, or other consideration; or (C) any other action that is treated as a repricing under generally accepted accounting principles.

Stock Options. ISOs and NSOs are granted under stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for stock options, within the terms and

conditions of the 2018 Plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Options granted under the 2018 Plan vest at the rate specified in the stock option agreement as determined by the plan administrator.

The plan administrator determines the term of stock options granted under the 2018 Plan, up to a maximum of 10 years. Unless the terms of an optionholder's stock option agreement provide otherwise, if an optionholder's service relationship with us or any of our affiliates ceases for any reason other than disability, death, or cause, the optionholder may generally exercise any vested options for a period of three months following the cessation of service. This period may be extended in the event that exercise of the option is prohibited by applicable securities laws or our insider trading policy. If an optionholder's service relationship with us or any of our affiliates ceases due to death, or an optionholder dies within a certain period following cessation of service, the optionholder or a beneficiary may generally exercise any vested options for a period of 18 months following the date of death. If an optionholder's service relationship with us or any of our affiliates ceases due to disability, the optionholder may generally exercise any vested options for a period of 12 months following the cessation of service. In the event of a termination for cause, options generally terminate upon the termination date. In no event may an option be exercised beyond the expiration of its term.

Acceptable consideration for the purchase of common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include (1) cash, check, bank draft or money order, (2) a broker- assisted cashless exercise, (3) the tender of shares of our common stock previously owned by the optionholder, (4) a net exercise of the option if it is an NSO, or (5) other legal consideration approved by the plan administrator.

Unless the plan administrator provides otherwise, options generally are not transferable except by will or the laws of descent and distribution. Subject to approval of the plan administrator or a duly authorized officer in each case, (i) an option may be transferred pursuant to a domestic relations order, official marital settlement agreement, or other divorce or separation instrument and (ii) an optionholder may designate a beneficiary who may exercise the option following the optionholder's death.

Tax Limitations on ISOs. The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an award holder during any calendar year under all of our stock plans may not exceed $100,000. Options or portions thereof that exceed such limit will generally be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant, and (2) the term of the ISO does not exceed five years from the date of grant.

Restricted Stock Unit Awards. Restricted stock unit awards are granted under restricted stock unit award agreements adopted by the plan administrator. Restricted stock unit awards may be granted in consideration for any form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. A restricted stock unit award may be settled by cash, delivery of stock, a combination of cash and stock as deemed appropriate by the plan administrator, or in any other form of consideration set forth in the restricted stock unit award agreement. Additionally, dividend equivalents may be credited in respect of shares covered by a restricted stock unit award. Except as otherwise provided in the applicable award agreement, restricted stock unit awards that have not vested will be forfeited once the participant's continuous service ends for any reason.

Restricted Stock Awards. Restricted stock awards are granted under restricted stock award agreements adopted by the plan administrator. A restricted stock award may be awarded in consideration for cash, check, bank draft or money order, past or future services to us, or any other form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. The plan administrator determines the terms and conditions of restricted stock awards, including vesting and forfeiture terms. If a participant's service relationship with us ends for any reason, we may receive any or all of the shares of common stock held by the

participant that have not vested as of the date the participant terminates service with us through a forfeiture condition or a repurchase right.

Stock Appreciation Rights. Stock appreciation rights are granted under stock appreciation right agreements adopted by the plan administrator. The plan administrator determines the purchase price or strike price for a stock appreciation right, which generally cannot be less than 100% of the fair market value of our common stock on the date of grant. A stock appreciation right granted under the 2018 Plan vests at the rate specified in the stock appreciation right agreement as determined by the plan administrator.

The plan administrator determines the term of stock appreciation rights granted under the 2018 Plan, up to a maximum of 10 years. If a participant's service relationship with us or any of our affiliates ceases for any reason other than cause, disability, or death, the participant may generally exercise any vested stock appreciation right for a period of three months following the cessation of service. This period may be further extended in the event that exercise of the stock appreciation right following such a termination of service is prohibited by applicable securities laws or our insider trading policy. If a participant's service relationship with us, or any of our affiliates, ceases due to disability or death, or a participant dies within a certain period following cessation of service, the participant or a beneficiary may generally exercise any vested stock appreciation right for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, stock appreciation rights generally terminate immediately upon the occurrence of the event giving rise to the termination of the individual for cause. In no event may a stock appreciation right be exercised beyond the expiration of its term.

Performance Awards. The 2018 Plan permits the grant of performance-based stock and cash awards. Our compensation committee may structure awards so that the stock or cash will be issued or paid only following the achievement of certain pre-established performance goals during a designated performance period.

The performance goals that may be selected include one or more of the following: (i) sales; (ii) revenues; (iii) assets; (iv) expenses; (v) market penetration or expansion; (vi) earnings from operations; (vii) earnings before or after deduction for all or any portion of interest, taxes, depreciation, amortization, incentives, service fees or extraordinary or special items, whether or not on a continuing operations or an aggregate or per share basis; (viii) net income or net income per common share (basic or diluted); (ix) return on equity, investment, capital or assets; (x) one or more operating ratios; (xi) borrowing levels, leverage ratios or credit rating; (xii) market share; (xiii) capital expenditures; (xiv) cash flow, free cash flow, cash flow return on investment, or net cash provided by operations; (xv) stock price, dividends or total stockholder return; (xvi) development of new technologies or products; (xvii) sales of particular products or services; (xviii) economic value created or added; (xix) operating margin or profit margin; (xx) customer acquisition or retention; (xxi) raising or refinancing of capital; (xxii) successful hiring of key individuals; (xxiii) resolution of significant litigation; (xxiv) acquisitions and divestitures (in whole or in part); (xxv) joint ventures and strategic alliances; (xxvi) spin-offs, split-ups and the like; (xxvii) reorganizations; (xxviii) recapitalizations, restructurings, financings (issuance of debt or equity) or refinancings; (xxix) or strategic business criteria, consisting of one or more objectives based on the following goals: achievement of timely development, design management or enrollment, meeting specified market penetration or value added, payor acceptance, patient adherence, peer reviewed publications, issuance of new patents, establishment of or securing of licenses to intellectual property, product development or introduction (including, without limitation, any clinical trial accomplishments, regulatory or other filings, approvals or milestones, discovery of novel products, maintenance of multiple products in pipeline, product launch or other product development milestones), geographic business expansion, cost targets, cost reductions or savings, customer satisfaction, operating efficiency, acquisition or retention, employee satisfaction, information technology, corporate development (including, without limitation, licenses, innovation, research or establishment of third-party collaborations), manufacturing or process development, legal compliance or risk reduction, patent application or issuance goals, or goals relating to acquisitions, divestitures or other business combinations (in whole or in part), joint ventures or strategic alliances; and (xxx) other measures of performance selected by the board of directors.

The performance goals may be based on company-wide performance or performance of one or more business units, divisions, affiliates, or business segments, and may be either absolute or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Our board of directors is authorized at any time in its sole discretion, to adjust or modify the calculation of a performance goal for such performance period in order to prevent the dilution or enlargement of the rights of participants, (a) in the event of, or in anticipation of, any unusual or extraordinary corporate item, transaction, event or development; (b) in recognition of, or in anticipation of, any other unusual or nonrecurring events affecting us, or our financial statements in response to, or in anticipation of, changes in applicable laws, regulations, accounting principles, or business conditions; or (c) in view of the board of director's assessment of our business strategy, performance of comparable organizations, economic and business conditions, and any other circumstances deemed relevant. Specifically, the board of directors is authorized to make adjustment in the method of calculating attainment of performance goals and objectives for a performance period as follows: (i) to exclude the dilutive effects of acquisitions or joint ventures; (ii) to assume that any business divested by us achieved performance objectives at targeted levels during the balance of a performance period following such divestiture; and (iii) to exclude the effect of any change in the outstanding shares of our common stock by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends. In addition, the board of directors is authorized to make adjustment in the method of calculating attainment of performance goals and objectives for a performance period as follows: (i) to exclude restructuring and/or other nonrecurring charges; (ii) to exclude exchange rate effects, as applicable, for non-U.S. dollar denominated net sales and operating earnings; to exclude the effects of changes to generally accepted accounting standards required by the Financial Accounting Standards Board; (iv) to exclude the effects of any items that are "unusual" in nature or occur "infrequently" as determined under generally accepted accounting principles; (v) to exclude the effects to any statutory adjustments to corporate tax rates; and (vi) to make other appropriate adjustments selected by the board of directors.

Other Stock Awards. The plan administrator may grant other awards based in whole or in part by reference to our common stock. The plan administrator will set the number of shares under the stock award and all other terms and conditions of such awards.

Changes to Capital Structure. In the event there is a specified type of change in our capital structure, such as a stock split, reverse stock split, or recapitalization, appropriate adjustments will be made to (1) the class and maximum number of shares reserved for issuance under the 2018 Plan, (2) the class and maximum number of shares by which the share reserve may increase automatically each year, (3) the class and maximum number of shares that may be issued on the exercise of ISOs and (4) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards.

Corporate Transactions. Our 2018 Plan provides that in the event of certain specified significant corporate transactions (or a change in control, as defined below), unless otherwise provided in an award agreement or other written agreement between us and the award holder, the plan administrator may take one or more of the following actions with respect to such stock awards:

- arrange for the assumption, continuation, or substitution of a stock award by a successor corporation;
- arrange for the assignment of any reacquisition or repurchase rights held by us to a successor corporation;
- accelerate the vesting, in whole or in part, of the stock award and provide for its termination if not exercised (if applicable) at or before the effective time of the transaction;
- arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by us;
- cancel or arrange for the cancellation of the stock award, to the extent not vested or not exercised before the effective time of the transaction, in exchange for a cash payment, if any; or

- make a payment equal to the excess, if any, of (A) the value of the property the participant would have received on exercise of the award immediately before the effective time of the transaction, over (B) any exercise price payable by the participant in connection with the exercise.

The plan administrator is not obligated to treat all stock awards or portions of stock awards in the same manner and is not obligated to take the same actions with respect to all participants.

Under the 2018 Plan, a corporate transaction is generally the consummation of: (1) a sale of all or substantially all of our assets, (2) the sale or disposition of more than 50% of our outstanding securities, (3) a merger or consolidation where we do not survive the transaction, or (4) a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately before such transaction are converted or exchanged into other property by virtue of the transaction.

Change in Control. In the event of a change in control, the plan administrator may take any of the above-mentioned actions. Awards granted under the 2018 Plan may be subject to additional acceleration of vesting and exercisability upon or after a change in control as may be provided in the applicable stock award agreement or in any other written agreement between us or any affiliate and the participant, but in the absence of such provision, no such acceleration will automatically occur. Under the 2018 Plan, a change in control is generally (1) the acquisition by any person or company of more than 50% of the combined voting power of our then outstanding stock, (2) a merger, consolidation or similar transaction in which our stockholders immediately before the transaction do not own, directly or indirectly, more than 50% of the combined voting power of the surviving entity (or the parent of the surviving entity) in substantially the same proportions as their ownership immediately prior to such transaction, (3) a sale, lease, exclusive license or other disposition of all or substantially all of our assets other than to an entity more than 50% of the combined voting power of which is owned by our stockholders in substantially the same proportions as their ownership of our outstanding voting securities immediately prior to such transaction, (4) a complete dissolution or liquidation of the company or (5) when a majority of our board of directors becomes comprised of individuals who were not serving on our board of directors on the date of the underwriting agreement related to this offering, or the incumbent board, or whose nomination, appointment, or election was not approved by a majority of the incumbent board still in office.

Plan Amendment or Termination. Our board of directors has the authority to amend, suspend, or terminate our 2018 Plan, provided that such action does not materially impair the existing rights of any participant without such participant's written consent. Certain material amendments also require the approval of our stockholders. No ISOs may be granted after the tenth anniversary of the date our board of directors adopts our 2018 Plan. No stock awards may be granted under our 2018 Plan while it is suspended or after it is terminated.

Prior Amended and Restated 2018 Equity Incentive Plan

Our board of directors adopted our prior Amended and Restated 2018 Equity Incentive Plan, or the Prior Plan, in June 2018 and our stockholders approved the Prior Plan in July 2018. All references in this prospectus to the Prior Plan shall be deemed to refer to our Amended and Restated 2018 Equity Incentive Plan, as amended, unless the context otherwise requires. As of September 30, 2018, there were 1,112,753 shares remaining available for the future grant of stock awards under our Prior Plan. As of September 30, 2018, there were outstanding stock options covering a total of 6,075,825 shares of our common stock that were granted under our Prior Plan.

Stock Awards. Our Prior Plan provides for the grant of ISOs within the meaning of Section 422 of the Code to employees, including employees of any parent or subsidiary, and for the grant of NSOs, stock appreciation rights, restricted stock awards, restricted stock unit awards and other stock awards to employees, directors and consultants, including employees and consultants of our affiliates. We have granted stock options under the Prior Plan.

Authorized Shares. Subject to certain capitalization adjustments, the aggregate number of shares of common stock that may be issued pursuant to stock awards under the Prior Plan will not exceed 12,209,153 shares. The

maximum number of shares of our common stock that may be issued pursuant to the exercise of ISOs under our Prior Plan is 36,627,459 shares.

Shares subject to stock awards granted under our Prior Plan that expire or terminate without being exercised in full or that are settled in cash rather than in shares do not reduce the number of shares available for issuance under our Prior Plan. Additionally, if any shares issued pursuant to a stock award are forfeited back to or repurchased because of the failure to meet a contingency or condition required to vest, then the shares that are forfeited or repurchased will revert to and again become available for issuance under the Prior Plan. This includes shares used to pay the exercise price of a stock award or to satisfy the tax withholding obligations related to a stock award.

Plan Administration. Our board of directors, or a duly authorized committee of our board of directors, will administer our Prior Plan and is referred to as the "plan administrator" herein. The plan administrator may also delegate to one or more of our officers the authority to (1) designate employees (other than officers) to receive specified stock awards and (2) determine the number of shares subject to such stock awards. Under our Prior Plan, the plan administrator has the authority to determine award recipients, dates of grant, the numbers and types of stock awards to be granted, the applicable fair market value and the provisions of each stock award, including the period of their exercisability and the vesting schedule applicable to a stock award.

Under the Prior Plan, the plan administrator also generally has the authority to effect, with the consent of any adversely affected participant, (A) the reduction of the exercise, purchase, or strike price of any outstanding award or (B) any other action that is treated as a repricing under generally accepted accounting principles.

Stock Options. ISOs and NSOs are granted under stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for stock options, within the terms and conditions of the Prior Plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Options granted under the Prior Plan vest at the rate specified in the stock option agreement as determined by the plan administrator.

The plan administrator determines the term of stock options granted under the Prior Plan, up to a maximum of 10 years. If an optionholder's service relationship with us or any of our affiliates ceases for any reason other than disability, death or cause, the optionholder may generally exercise any vested options for a period of three months following the cessation of service. This period may be extended in the event that exercise of the option is prohibited by applicable securities laws or our insider trading policy. If an optionholder's service relationship with us or any of our affiliates ceases due to death, or an optionholder dies within a certain period following cessation of service, the optionholder or a beneficiary may generally exercise any vested options for a period of 18 months following the date of death. If an optionholder's service relationship with us or any of our affiliates ceases due to disability, the optionholder may generally exercise any vested options for a period of 12 months following the cessation of service.

In the event of a termination for cause, options generally terminate upon the termination date. In no event may an option be exercised beyond the expiration of its term.

Acceptable consideration for the purchase of common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include (1) cash, check, bank draft or money order, (2) a broker-assisted cashless exercise, (3) the tender of shares of our common stock previously owned by the optionholder, (4) a net exercise of the option if it is an NSO, (5) a deferred payment arrangement or (6) other legal consideration approved by the plan administrator.

Unless the plan administrator provides otherwise, options generally are not transferable except by will or the laws of descent and distribution.

Tax Limitations on ISOs. The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an optionholder during any calendar year under all of our stock plans may not exceed $100,000. Options or portions thereof that exceed such limit will generally be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant and (2) the term of the ISO does not exceed five years from the date of grant.

Restricted Stock Unit Awards. Restricted stock unit awards are granted under restricted stock unit award agreements adopted by the plan administrator. Restricted stock unit awards may be granted in consideration for any form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. A restricted stock unit awards may be settled by cash, delivery of stock, a combination of cash and stock as deemed appropriate by the plan administrator, or in any other form of consideration set forth in the restricted stock unit award agreement. Additionally, dividend equivalents may be credited in respect of shares covered by a restricted stock unit award. Except as otherwise provided in the applicable award agreement, restricted stock unit awards that have not vested will be forfeited once the participant's continuous service ends for any reason.

Restricted Stock Awards. Restricted stock awards are granted under restricted stock award agreements adopted by the plan administrator. A restricted stock award may be awarded in consideration for cash, check, bank draft or money order, past or future services to us, or any other form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. The plan administrator determines the terms and conditions of restricted stock awards, including vesting and forfeiture terms. If a participant's service relationship with us ends for any reason, we may receive any or all of the shares of common stock held by the participant that have not vested as of the date the participant terminates service with us through a forfeiture condition or a repurchase right.

Changes to Capital Structure. In the event there is a specified type of change in our capital structure, such as a stock split, reverse stock split, or recapitalization, appropriate adjustments will be made to (1) the class and maximum number of shares reserved for issuance under the Prior Plan, (2) the class and maximum number of shares that may be issued on the exercise of ISOs and (3) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards.

Corporate Transactions. Our Prior Plan provides that in the event of certain specified significant corporate transactions, unless otherwise provided in an award agreement or other written agreement between us and the award holder, the plan administrator may take one or more of the following actions with respect to such stock awards:

- arrange for the assumption, continuation, or substitution of a stock award by a surviving or acquiring corporation;
- arrange for the assignment of any reacquisition or repurchase rights held by us to the surviving or acquiring corporation;
- accelerate the vesting, in whole or in part, of the stock award and provide for its termination if not exercised (if applicable) at or before the effective time of the transaction;
- arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by us;
- cancel or arrange for the cancellation of the stock award, to the extent not vested before the effective time of the transaction, in exchange for no consideration or for a cash payment, if any as the plan administrator deems appropriate; and
- cancel or arrange for the cancellation of the stock award in exchange for a payment equal to the excess, if any, of (A) the value of the property the participant would have received on exercise of the award immediately before the effective time of the transaction, over (B) any exercise price payable by the participant in connection with the exercise.

The plan administrator is not obligated to treat all stock awards or portions of stock awards in the same manner and is not obligated to treat all participants in the same manner.

Under the Prior Plan, a corporate transaction is generally the consummation of: (1) a sale of all or substantially all of our assets, (2) the sale or disposition of at least 50% of our outstanding securities, (3) a merger or consolidation where we do not survive the transaction, or (4) a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately before such transaction are converted or exchanged into other property by virtue of the transaction.

Change in Control. A stock award under the Prior Plan may be subject to additional acceleration of vesting and exercisability upon or after a change in control as may be provided in the award agreement or other written agreement between us and the participant, but in the absence of such provision, no such acceleration will occur, except as described above. Under the Prior Plan, a change in control is a transaction that qualifies as a "deemed liquidation event" as defined in our amended and restated certificate of incorporation, but excluding (1) a capitalization adjustment, (2) a public offering of our securities, (3) a captial raising transaction, (4) a transaction exclusively for the purpose of changing our domicile or corporate form, or (5) a merger, consolidation or similar transaction in which our stockholders immediately before the transaction continue to hold, directly or indirectley, at the least a majority of our combined voting power or the combined voting power of the surviving entity (as applicable) immediately following such transaction.

Plan Amendment or Termination. Our board of directors has the authority to amend, suspend, or terminate our Prior Plan, provided that such action does not impair the existing rights of any participant without such participant's written consent. Certain material amendments also require the approval of our stockholders. Unless terminated sooner, the Prior Plan will automatically terminate on June 24, 2028. No stock awards may be granted under our Prior Plan while it is suspended or after it is terminated.

2018 Employee Stock Purchase Plan

Our board of directors adopted the ESPP in September 2018 and our stockholders approved the ESPP in October 2018. The ESPP became effective immediately prior to the date of the underwriting agreement related to this offering. The purpose of the ESPP is to secure the services of new employees, to retain the services of existing employees, and to provide incentives for such individuals to exert maximum efforts toward our success and that of our affiliates. The ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the Code for U.S. employees.

Share Reserve. Following this offering, the ESPP authorizes the issuance of 1,160,000 shares of our common stock under purchase rights granted to our employees or to employees of any of our designated affiliates. The number of shares of our common stock reserved for issuance will automatically increase on January 1 of each calendar year, beginning on January 1, 2019 through January 1, 2028, by the lesser of (1) 1% of the total number of shares of our common stock outstanding on the last day of the calendar month before the date of the automatic increase and (2) 2,320,000 shares; provided that before the date of any such increase, our board of directors may determine that such increase will be less than the amount set forth in clauses (1) and (2). As of the date hereof, no shares of our common stock have been purchased under the ESPP.

Administration. Our board of directors administers the ESPP and may delegate its authority to administer the ESPP to our compensation committee. The ESPP is implemented through a series of offerings under which eligible employees are granted purchase rights to purchase shares of our common stock on specified dates during such offerings. Under the ESPP, we may specify offerings with durations of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which shares of our common stock will be purchased for employees participating in the offering. An offering under the ESPP may be terminated under certain circumstances.

Payroll Deductions. Generally, all regular employees, including executive officers, employed by us or by any of our designated affiliates, may participate in the ESPP and may contribute, normally through payroll deductions, up to 15% of their earnings (as defined in the ESPP) for the purchase of our common stock under the ESPP. Unless otherwise determined by our board of directors, common stock will be purchased for the accounts of employees participating in the ESPP at a price per share that is at least the lesser of (1) 85% of the fair market value of a share of our common stock on the first date of an offering or (2) 85% of the fair market value of a share of our common stock on the date of purchase.

Limitations. Employees may have to satisfy one or more of the following service requirements before participating in the ESPP, as determined by our board of directors, including: (1) being customarily employed for more than 20 hours per week, (2) being customarily employed for more than five months per calendar year or (3) continuous employment with us or one of our affiliates for a period of time (not to exceed two years). No employee may purchase shares under the ESPP at a rate in excess of $25,000 worth of our common stock based on the fair market value per share of our common stock at the beginning of an offering for each calendar year such a purchase right is outstanding. Finally, no employee will be eligible for the grant of any purchase rights under the ESPP if immediately after such rights are granted, such employee has voting power over 5% or more of our outstanding capital stock measured by vote or value under Section 424(d) of the Code.

Changes to Capital Structure. In the event that there occurs a change in our capital structure through such actions as a stock split, merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, liquidating dividend, combination of shares, exchange of shares, change in corporate structure, or similar transaction, the board of directors will make appropriate adjustments to: (1) the class(es) and maximum number of shares reserved under the ESPP, (2) the class(es) and maximum number of shares by which the share reserve may increase automatically each year, (3) the class(es) and number of shares subject to and purchase price applicable to outstanding offerings and purchase rights and (4) the class(es) and number of shares that are subject to purchase limits under ongoing offerings.

Corporate Transactions. In the event of certain significant corporate transactions, any then-outstanding rights to purchase our stock under the ESPP may be assumed, continued, or substituted for by any surviving or acquiring entity (or its parent company). If the surviving or acquiring entity (or its parent company) elects not to assume, continue, or substitute for such purchase rights, then the participants' accumulated payroll contributions will be used to purchase shares of our common stock within 10 business days before such corporate transaction, and such purchase rights will terminate immediately.

Under the ESPP, a corporate transaction is generally the consummation of: (1) a sale of all or substantially all of our assets, (2) the sale or disposition of more than 50% of our outstanding securities, (3) a merger or consolidation where we do not survive the transaction and (4) a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately before such transaction are converted or exchanged into other property by virtue of the transaction.

ESPP Amendment or Termination. Our board of directors has the authority to amend or terminate our ESPP, provided that except in certain circumstances such amendment or termination may not materially impair any outstanding purchase rights without the holder's consent. We will obtain stockholder approval of any amendment to our ESPP as required by applicable law or listing requirements.

Director Compensation

Except as indicated below, historically, we have not paid cash, equity or other compensation to any of our non-employee directors for service on our board of directors, and our non-employee directors did not receive any compensation for their board service in 2017. We have reimbursed and will continue to reimburse all of our non-employee directors for their travel, lodging and other reasonable expenses incurred in attending meetings of our board of directors and committees of our board of directors.

In June 2018, our board of directors approved a compensation package for Arie Belldegrun, M.D., FACS, our Executive Chairman, which includes an option to purchase 976,500 shares of our common stock. In addition, Franz Humer, Ph.D., and Owen Witte, M.D., were each granted an option to purchase 183,750 shares of our common stock and an annual cash retainer of $40,000, payable quarterly. In connection with her appointment to our board of directors in September 2018, Ms. Messemer was granted an option to purchase 210,000 shares of our common stock and an annual cash retainer of $40,000, payable quarterly. Each of the options granted to Drs. Belldegrun, Humer and Witte and to Ms. Messemer are subject to a four-year vesting schedule, with 25% vesting one year after the vesting commencement date and the balance vesting monthly over the remaining 36 months, subject to each individual's continued service through each vesting date. As chair of the audit committee, Dr. Humer also received an annual cash retainer of $25,000, payable quarterly. Please see "Certain Relationships and Related Party Transactions—Consulting Arrangements" for additional information relating to Dr. Belldegrun's compensation.

Our board of directors adopted a new compensation policy in September 2018 that became effective upon the execution and delivery of the underwriting agreement related to this offering and is applicable to all of our non-employee directors. This compensation policy provides that each such non-employee director will receive the following compensation for service on our board of directors:

- an annual cash retainer of $40,000;
- an additional annual cash retainer of $12,500, $7,500 and $5,000 for service as a member of the audit committee, compensation committee and the nominating and corporate governance committee, respectively;
- an additional annual cash retainer of $25,000, $15,000 and $10,000 for service as chairman of the audit committee, compensation committee and the nominating and corporate governance committee, respectively (in lieu of the committee member retainer above);
- an initial option grant to purchase 54,075 shares of our common stock, vesting in 36 equal monthly installments, and a restricted stock unit award that may be settled for 16,275 shares of our common stock, vesting annually over a three-year period from the date of grant; and
- an annual option grant to purchase 27,300 shares of our common stock, vesting in 12 equal monthly installments, and a restricted stock unit award that may be settled for 7,875 shares of our common stock, vesting on the one-year anniversary from the date of grant. The annual grants shall be made on the date of each of our annual stockholder meetings.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following includes a summary of transactions since November 30, 2017, our inception, to which we have been a party, in which the amount involved in the transaction exceeded $120,000, and in which any of our directors, executive officers or, to our knowledge, beneficial owners of more than 5% of our capital stock or any member of the immediate family of any of the foregoing persons had or will have a direct or indirect material interest, other than equity and other compensation, termination, change in control and other arrangements, which are described under "Executive And Director Compensation."

Series A and A-1 Convertible Preferred Stock Financing

In April 2018, we entered into a Series A and A-1 preferred stock purchase agreement with various investors, pursuant to which we issued and sold to participating investors an aggregate of 7,557,900 shares of our Series A convertible preferred stock and 998,225 shares of our Series A-1 convertible preferred stock at a purchase price of $35.06 per share, and received aggregate gross proceeds of approximately $300 million. Half of this funding was received in April 2018 and the remainder was received in July and August 2018.

The participants in the Series A and A-1 convertible preferred stock financing included the following executive officers and members of our board of directors and holders of more than 5% of our capital stock or entities affiliated with them. The following table sets forth the aggregate number of shares of convertible preferred stock issued to these related parties in the Series A and A-1 convertible preferred stock financing:

Participants	Shares of Series A Convertible Preferred Stock	Shares of Series A-1 Convertible Preferred Stock	Consideration
Executive Officers and Directors			
David Chang, M.D., Ph.D.(1)	5,704	—	$ 199,995
Joshua Kazam	3,565	—	$ 124,997
Arie Belldegrun, M.D., FACS(2)	27,095	—	$ 950,011
Owen Witte, M.D.	7,130	—	$ 249,994
Franz Humer, Ph.D.	14,261	—	$ 500,023
Greater than 5% stockholders			
Pfizer Inc.	—	998,225	$ 34,999,998
Entities affiliated with TPG Carthage Holdings, L.P.(3)	4,278,107	—	$149,999,984
Gilead Sciences, Inc.	1,426,036	—	$ 50,000,007
Entities affiliated with VVAG Special Fund LLC (4)	1,426,036	—	$ 50,000,007
Seaview Trust	57,042	—	$ 2,000,020

(1) Consists of 5,704 shares of Series A convertible preferred stock held by the Chang 2006 Family Trust (Chang Trust). Dr. Chang, our President and Chief Executive Officer and a member of our board of directors, is a trustee of the Chang Trust.

(2) Consists of 27,095 shares of Series A convertible preferred stock held by the Belldegrun Family Trust (Belldegrun Trust). Dr. Belldegrun, a member of our board of directors, is a trustee of the Belldegrun Trust.

(3) Consists of (i) 2,852,071 shares of Series A convertible preferred stock held by TPG Carthage Holdings, L.P. and (ii) 1,426,036 shares of Series A convertible preferred stock held by The Rise Fund Carthage, L.P.

(4) Consists of (i) 1,140,829 shares of Series A convertible preferred stock held by VVAG Special Fund LLC (VVAG), and (ii) 285,207 shares of Series A convertible preferred stock held by Vida Ventures, LLC (Vida). Arie Belldegrun, M.D., FACS, the Executive Chairman of our board of directors, is a Co-Founder and Managing Director of VVAG, Vida and certain of their affiliated entities.

Pfizer Asset Purchase Transaction

In April 2018, we entered into an asset contribution agreement with Pfizer. The Pfizer asset contribution agreement is described above in "Business—Strategic Agreements."

In April 2018, we entered into a transition services agreement with Pfizer for certain research and development and general and administrative services relating to our development of the assets and products that we purchased from Pfizer. The Pfizer transition services agreement is described above in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Transition Services Agreement."

Investor Agreements

In connection with our Series A and A-1 convertible preferred stock financing, we entered into an investors' rights agreement, voting agreement and right of first refusal and co-sale agreement containing registration rights, information rights, voting rights and rights of first refusal and co-sale, among other things, with certain of our stockholders. In addition, in connection with our sale and issuance of the 2018 Notes in September 2018, we amended our investors' rights agreement to provide certain registration rights to the purchasers of the 2018 Notes. The foregoing agreements will terminate upon the closing of this offering, except for the registration rights set forth in the investors' rights agreements, as more fully described below in "Description of Capital Stock—Registration Rights."

Consulting Arrangements

In April 2018, we entered into an Independent Contractor Agreement with David Chang, M.D., Ph.D., our President and Chief Executive Officer and member of our board of directors, for services consistent with the role and duties of Chief Executive Officer. In exchange for the services agreed upon under the consulting agreement, we paid Dr. Chang at a rate of $8,250 per week. The agreement was terminated in June 2018.

In June 2018, we entered into a letter agreement with TPG Capital – FO LLC (TPG FO), an affiliate of TPG Carthage Holdings, L.P. and The Rise Fund Carthage, L.P., beneficial owners of more than 5% of our capital stock, for consulting services. Pursuant to the letter agreement, TPG FO is to provide strategic, operations and transition consulting services for a consulting fee not to exceed $150,000 per quarter, paid in arrears beginning in April 2018, unless a higher rate is approved by our board of directors or our audit committee.

In June 2018, we entered into a consulting agreement with Two River Consulting LLC (Two River). Arie Belldegrun, M.D., FACS, the Executive Chairman of our board of directors and Joshua Kazam, a member of our board of directors, are each partners of Two River, and David Chang, M.D., Ph.D., our President and Chief Executive Officer, is a venture partner of Two River. Pursuant to the consulting agreement, Two River provides strategic, financial, business development and secretarial consulting services and is compensated for such services rendered at a rate of no more than $150,000 per quarter, paid in arrears beginning in April 2018, unless a higher rate is approved by our board of directors or our audit committee. Dr. Belldegrun and Dr. Chang do not receive any salary, commission or other fees for serving as partners of Two River.

In August 2018 we entered into a consulting agreement with Bellco Capital LLC (Bellco). Our executive chairman, Arie Belldegrun, M.D., FACS, is the Chairman and an owner of Bellco. Pursuant to the consulting agreement, Bellco provides certain services for us, which are performed by Dr. Belldegrun and include without limitation, providing advice and analysis with respect to our business, business strategy and potential opportunities in the field of allogeneic CAR T cell therapy and any other aspect of the CAR T cell therapy business as we may agree. In consideration for these services, we pay Bellco $26,250 per month in arrears commencing June 2018 and, in our discretion, may pay Bellco an annual performance award in an amount up to 60% of the aggregate compensation payable to Bellco in a calendar year. We also reimburse Bellco for out of pocket expenses incurred in performing the services.

Stock Options Granted to Executive Officers and Directors

We have granted stock options to our executive officers and directors, as more fully described in the section entitled "Executive and Director Compensation."

Indemnification Agreements

We have entered, and intend to continue to enter, into separate indemnification agreements with each of our directors and executive officers, as described in "Management — Limitation of Liability and Indemnification."

Policies and Procedures for Transactions with Related Persons

We have adopted a written related-person transactions policy that sets forth our policies and procedures regarding the identification, review, consideration and oversight of "related-person transactions." For purposes of our policy only, a "related-person transaction" is a transaction, arrangement or relationship (or any series of similar transactions, arrangements or relationships) in which we and any "related person" are participants involving an amount that exceeds $120,000. Transactions involving compensation for services provided to us as an employee, consultant or director are not considered related-person transactions under this policy. A related person is any executive officer, director, nominee to become a director or a holder of more than five percent of our common stock, including any of their immediate family members and affiliates, including entities owned or controlled by such persons.

Under the policy, where a transaction has been identified as a related-person transaction, management must present information regarding the proposed related-person transaction to our audit committee (or, where review by our audit committee would be inappropriate, to another independent body of our board of directors) for review. The presentation must include a description of, among other things, all of the parties thereto, the direct and indirect interests of the related persons, the purpose of the transaction, the material facts, the benefits of the transaction to us and whether any alternative transactions are available, an assessment of whether the terms are comparable to the terms available from unrelated third parties and management's recommendation. To identify related-person transactions in advance, we rely on information supplied by our executive officers, directors and certain significant stockholders. In considering related-person transactions, our audit committee or another independent body of our board of directors takes into account the relevant available facts and circumstances including, but not limited to:

- the risks, costs and benefits to us;
- the impact on a director's independence in the event the related person is a director, immediate family member of a director or an entity with which a director is affiliated;
- the terms of the transaction;
- the availability of other sources for comparable services or products; and
- the terms available to or from, as the case may be, unrelated third parties.

In the event a director has an interest in the proposed transaction, the director must recuse himself or herself from the deliberations and approval.

PRINCIPAL STOCKHOLDERS

The following table sets forth information regarding beneficial ownership of our capital stock by:

- each person, or group of affiliated persons, known by us to beneficially own more than 5% of our common stock;
- each of our directors;
- our named executive officer; and
- all of our current executive officers and directors as a group.

The percentage ownership information under the column entitled “Before Offering” is based on 89,370,665 shares of common stock outstanding as of June 30, 2018, assuming conversion of all outstanding shares of our convertible preferred stock into 61,655,922 shares of common stock, which will occur in connection with the closing of this offering. The percentage ownership information under the column entitled “After Offering” is based on (i) the sale of 18,000,000 shares of common stock in this offering and (ii) the automatic settlement of the 2018 Notes into an aggregate of 7,856,176 shares of our common stock in connection with the closing of this offering. The following table does not reflect any potential purchases pursuant to the directed share program or otherwise in this offering, which purchases, if any, will increase the percentage of shares owned by certain of our directors and executive officers after this offering.

Information with respect to beneficial ownership has been furnished by each director, officer or beneficial owner of more than 5% of our common stock. We have determined beneficial ownership in accordance with the rules of the SEC. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities. In addition, the rules include shares of common stock issuable pursuant to the exercise of stock options that are either immediately exercisable or exercisable on or before August 29, 2018, which is 60 days after June 30, 2018. These shares are deemed to be outstanding and beneficially owned by the person holding those options for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, the persons or entities identified in this table have sole voting and investment power with respect to all shares shown as beneficially owned by them, subject to applicable community property laws.

Except as otherwise noted below, the address for each person or entity listed in the table is c/o Allogene Therapeutics, Inc., 210 East Grand Avenue, South San Francisco, California 94080.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned	
		Before Offering	After Offering
Greater than 5% Stockholders			
Pfizer Inc.(1)	21,976,484	24.6%	19.1%
Entities affiliated with TPG Carthage Holdings, L.P. (2)	22,460,061	25.1%	19.5%
Gilead Sciences, Inc.(3)	7,486,689	8.4%	6.5%
Entities affiliated with VVAG Special Fund LLC(4)	7,486,689	8.4%	6.5%
Seaview Trust(5)	7,986,037	8.9%	6.9%
Directors and Named Executive Officers			
David Chang, M.D., Ph.D.(6)	4,553,713	5.0%	3.9%
Joshua Kazam(7)	1,737,151	1.9%	1.5%
Arie Belldegrun, M.D., FACS(8)	12,540,696	13.9%	10.8%
Franz Humer, Ph.D.(9)	258,620	*	*
Owen Witte, M.D.(10)	221,182	*	*
David Bonderman(11)	22,460,061	25.1%	19.5%
Todd Sisitsky	—	—	—
John DeYoung	—	—	—
Deborah Messemer	—	—	—
All current executive officers and directors as a group (12 persons)(12)	44,128,671	47.2%	37.0%

* Represents beneficial ownership of less than 1%.

(1) Consists of 21,976,484 shares of common stock issuable upon conversion of preferred stock held by Pfizer Inc. (Pfizer). The address of Pfizer is 235 E. 42nd Street, New York, NY 10017.

(2) Consists of (i) 14,973,372 shares of common stock issuable upon conversion of preferred stock held by TPG Carthage Holdings, L.P. (TPG Carthage), and (ii) 7,486,689 shares of common stock issuable upon conversion of preferred stock held by The Rise Fund Carthage, L.P. (Rise Carthage). The general partner of TPG Carthage is TPG GenPar VII, L.P., whose general partner is TPG GenPar VII Advisors, LLC, whose sole member is TPG Holdings I, L.P., whose general partner is TPG Holdings I-A, LLC, whose sole member is TPG Group Holdings (SBS), L.P. (Group Holdings), whose general partner is TPG Group Holdings (SBS) Advisors, LLC, whose sole member is TPG Group Holdings (SBS) Advisors, Inc. (Group Advisors). The general partner of Rise Carthage is The Rise Fund GenPar, L.P., whose general partner is The Rise Fund GenPar Advisors, LLC, whose sole member is TPG Holdings I, L.P., whose general partner is TPG Holdings I-A, LLC, whose sole member is Group Holdings, whose general partner is TPG Group Holdings (SBS) Advisors, LLC, whose sole member is Group Advisors. David Bonderman, a member of our board of directors, and James G. Coulter are sole shareholders of Group Advisors and may therefore be deemed to be the beneficial owners of the common shares held by TPG Carthage and Rise Carthage. Messrs. Bonderman and Coulter disclaim beneficial ownership of the TPG Shares except to the extent of their pecuniary interest therein. The address of each of TPG Carthage and Rise Carthage, Group Advisors is c/o TPG Global, LLC, 301 Commerce Street, Suite 3300, Fort Worth, Texas 76102.

(3) Consists of 7,486,689 shares of common stock issuable upon conversion of preferred stock held by Gilead Sciences, Inc. (Gilead). The address of Gilead is 333 Lakeside Drive, Foster City, CA 94404.

(4) Consists of (i) 5,989,352 shares of common stock issuable upon conversion of preferred stock held by VVAG Special Fund LLC (VVAG), and (ii) 1,497,336 shares of common stock issuable upon conversion of preferred stock held by Vida Ventures, LLC (Vida). VVAG LLC is the manager of VVAG. Arie Belldegrun, M.D., FACS, Executive Chairman of our board of directors, Leonard Potter and Fred Cohen, M.D., D.Phil., are Senior Managing Directors, and each may therefore be deemed to be the beneficial owners of the common shares held by VVAG. VV Manager LLC is the manager of Vida. Dr. Belldegrun, Mr. Potter, and Dr. Cohen, are Senior Managing Directors of VV Manager LLC and may therefore be deemed to be the beneficial owners of the common shares held by Vida. Dr. Belldegrun, Mr. Potter and Cohen each disclaim beneficial ownership of such shares, except to the extent of any pecuniary interest therein. The address of VVAG LLC and VV Manager LLC is 40 Broad Street, Suite 201, Boston MA 02109.

(5) Consists of (i) 7,686,567 shares of common stock and (ii) 299,470 shares of common stock issuable upon conversion of preferred stock. Hanna Ackerman is trustee of the Seaview Trust and may therefore be deemed to be the beneficial owner of the common shares held by the Seaview Trust. Dr. Belldegrun is an economic beneficiary of the Seaview Trust, but he does not have voting or investment control over the shares held by the Seaview Trust. The address of the Seaview Trust is 811 Strada Vecchia Rd., Los Angeles, CA 90077.

(6) Consists of (i) 2,568,142 shares of common stock and 29,946 shares of common stock issuable upon conversion of preferred stock held by the Chang 2006 Family Trust (Chang Trust) and (ii) 1,955,625 shares of common stock issuable upon exercise of options, all of which will be unvested but exercisable within 60 days of June 30, 2018. David Chang, M.D., Ph.D., our President and Chief Executive Officer and member of our board or directors, is co-trustee of the Chang Trust.

(7) Consists of 1,718,435 shares of common stock and 18,716 shares of common stock issuable upon conversion of preferred stock held by Joshua Kazam. Mr. Kazam resigned as our President in June 2018.

(8) Consists of (i) 3,935,258 shares of common stock and 142,248 shares of common stock issuable upon conversion of preferred stock held by the Belldegrun Family Trust, (ii) the shares of common stock issuable upon the conversion of preferred stock held by VVAG and Vida as described in note (4) above and (iii) 976,500 shares of common stock issuable upon exercise of options, all of which will be unvested but exercisable within 60 days of June 30, 2018. Dr. Belldegrun is the co-trustee of the Belldegrun Family Trust and a Senior Managing Director of VVAG LLC and VV Manager LLC and may be deemed to beneficially own the shares held by the Belldegrun Family Trust, VVAG and Vida. Dr. Belldegrun disclaims beneficial ownership of the shares, except to the extent of any pecuniary interest therein, to the shares held by each of the Belldegrun Family Trust, VVAG and Vida.

(9) Consists of (i) 74,870 shares of common stock issuable upon conversion of preferred stock and (ii) 183,750 shares of common stock issuable upon exercise of options, all of which will be unvested but exercisable within 60 days of June 30, 2018 held by Franz Humer, Ph.D.

(10) Consists of (i) 37,432 shares of common stock issuable upon conversion of preferred stock and (ii) 183,750 shares of common stock issuable upon exercise of options, all of which will be unvested but exercisable within 60 days of June 30, 2018 held by Owen Witte, M.D.

(11) Consists of the shares described in note (2) above.

(12) Includes the shares described in notes (6) through (11), and shares held or issuable upon early exercise of stock options by executive officers who are not named in the table above.

DESCRIPTION OF CAPITAL STOCK

Upon filing and effectiveness of our amended and restated certificate of incorporation and the closing of this offering, our authorized capital stock will consist of 200,000,000 shares of common stock, par value $0.001 per share, and 10,000,000 shares of preferred stock, par value $0.001 per share. All of our authorized preferred stock upon the closing of this offering will be undesignated. The following is a summary of the rights of our common and preferred stockholders and some of the provisions of our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective immediately prior to and upon the closing of this offering, respectively, and of the Delaware General Corporation Law. This summary is not complete. For more detailed information, please see our amended and restated certificate of incorporation and amended and restated bylaws, which are filed as exhibits to the registration statement of which this prospectus is a part, as well as the relevant provisions of the Delaware General Corporation Law.

Common Stock

Outstanding Shares

As of June 30, 2018, there were 27,714,743 shares of common stock issued and outstanding held of record by 41 stockholders. This amount excludes our outstanding shares of convertible preferred stock, which will convert into 61,655,922 shares of common stock in connection with the closing of this offering. Based on the number of shares of common stock outstanding as of June 30, 2018, and (i) the conversion of all outstanding shares of our convertible preferred stock, (ii) the settlement of all outstanding 2018 Notes into an aggregate of 7,856,176 shares of our common stock in connection with the closing of this offering and (iii) the issuance by us of 18,000,000 shares of common stock in this offering, there will be 115,226,841 shares of common stock outstanding upon the closing of this offering.

As of June 30, 2018, there were 7,344,225 shares of common stock subject to outstanding options under our equity incentive plan.

Voting

Our common stock is entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, including the election of directors, and does not have cumulative voting rights. Accordingly, the holders of a majority of the shares of our common stock entitled to vote in any election of directors can elect all of the directors standing for election.

Dividends

Subject to preferences that may be applicable to any then-outstanding preferred stock, the holders of common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds.

Liquidation

In the event of our liquidation, dissolution or winding-up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion or subscription rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of

the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our preferred stock that we may designate and issue in the future.

Fully Paid and Nonassessable

All of our outstanding shares of common stock are, and the shares of common stock to be issued in this offering will be, fully paid and nonassessable.

Convertible Preferred Stock

As of June 30, 2018, there were 11,743,987 shares of convertible preferred stock outstanding, held of record by 23 stockholders. In connection with the closing of this offering, all outstanding shares of convertible preferred stock will be converted into 61,655,922 shares of our common stock. Immediately prior to the closing of this offering, our certificate of incorporation will be amended and restated to delete all references to such shares of convertible preferred stock. Under the amended and restated certificate of incorporation, our board of directors will have the authority, without further action by the stockholders, to issue up to 10,000,000 shares of convertible preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the rights, preferences and privileges of the shares of each wholly unissued series and any qualifications, limitations or restrictions thereon and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding.

Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in our control that may otherwise benefit holders of our common stock and may adversely affect the market price of the common stock and the voting and other rights of the holders of common stock. We have no current plans to issue any shares of preferred stock.

Registration Rights

After the closing of this offering, certain holders of shares of our common stock, including all of the current preferred stockholders, including certain holders of more than five percent of our capital stock and entities affiliated with certain of our directors, and the holders of the 2018 Notes, will be entitled to certain rights with respect to registration of the shares of common stock issued upon conversion of our convertible preferred stock and the 2018 Notes under the Securities Act. These shares are referred to as registrable securities. The holders of these registrable securities possess registration rights pursuant to the terms of the investors' rights agreement and are described in additional detail below.

The registration of shares of our common stock pursuant to the exercise of the registration rights described below would enable the holders to trade these shares without restriction under the Securities Act when the applicable registration statement is declared effective. We are required to pay all registration expenses, other than underwriting discounts, selling commissions and stock transfer taxes, (collectively, Selling Expenses), of the shares registered pursuant to the demand, piggyback and Form S-3 registrations described below.

Generally, in an underwritten offering, the managing underwriter, if any, has the right, subject to specified conditions, to limit the number of shares the holders may include. The demand, piggyback and Form S-3 registration rights described below will expire upon the earliest to occur of (i) the closing of a "Deemed Liquidation Event", as such term is defined in our amended and restated certificate of incorporation (as currently in effect), (ii) five years after the effective date of the registration statement, of which this prospectus forms a part, (iii) with respect to any particular holder, at such time after consummation of the our first underwritten public offering that such holder can sell its shares under Rule 144 of the Securities Act during any three-month period, or (iv) upon termination of the investors' rights agreement.

Demand Registration Rights

The holders of the registrable securities will be entitled to certain demand registration rights. Subject to the terms of the lockup agreements described under "Underwriters", at any time beginning on the earlier of April 6, 2021 or 180 days following the closing of this offering, the holders of at least 51% of the registrable securities then outstanding, may make a written request that we register all or a portion of their shares, subject to certain specified exceptions. Such request for registration must cover securities the aggregate offering price of which, after payment of Selling Expenses, would exceed $20,000,000. We will not be required to effect more than two registrations pursuant to these demand registration rights.

Piggyback Registration Rights

In connection with this offering, the holders of registrable securities were entitled to, and the necessary percentage of holders waived, their rights to notice of this offering and to include their shares of registrable securities in this offering. If we propose to register for offer and sale any of our securities under the Securities Act in another offering, either for our own account or for the account of other security holders, the holders of registrable securities will be entitled to certain "piggyback" registration rights allowing them to include their shares in such registration, subject to certain marketing and other limitations. As a result, whenever we propose to file a registration statement under the Securities Act, including a registration statement on Form S-3 as discussed below, other than with respect to a demand registration or a registration statement on Forms S-4 or S-8, the holders of these shares are entitled to notice of the registration and have the right, subject to limitations that the underwriters may impose on the number of shares included in the registration, to include their shares in the registration.

Form S-3 Registration Rights

The holders of the registrable securities will be entitled to certain Form S-3 registration rights. Holders of at least 30% of the registrable securities may request that we register for offer and sale their shares on Form S-3 if we are qualified to file a registration statement on Form S-3, subject to certain specified exceptions. Such request for registration on Form S-3 must cover securities the aggregate offering price of which, after payment of Selling Expenses, equals or exceeds $2,000,000. We will not be required to effect more than two registrations on Form S-3 within any 12-month period.

Anti-Takeover Effects of Provisions of Our Amended and Restated Certificate of Incorporation, Our Amended and Restated Bylaws and Delaware Law

Delaware Anti-Takeover Law

We are subject to Section 203 of the Delaware General Corporation Law (Section 203). Section 203 generally prohibits a public Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years following the time that such stockholder became an interested stockholder, unless:

- prior to such time the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (1) by persons who are directors and also officers and (2) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- at or subsequent to such time, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66-2/3% of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; and
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws

Provisions of our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective immediately prior to and upon the closing of this offering, respectively, may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our amended and restated certificate of incorporation and amended and restated bylaws:

- permit our board of directors to issue up to 10,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate (including the right to approve an acquisition or other change in our control);
- provide that the authorized number of directors may be changed only by resolution of the board of directors;
- provide that the board of directors or any individual director may only be removed with cause and the affirmative vote of the holders of at least 66-2/3% of the voting power of all of our then outstanding common stock;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- divide our board of directors into three classes;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide notice in writing in a timely manner and also specify requirements as to the form and content of a stockholder’s notice;

- do not provide for cumulative voting rights (therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose);
- provide that special meetings of our stockholders may be called only by the chairman of the board, our Chief Executive Officer or by the board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors; and
- provide that to the fullest extent permitted by law the Court of Chancery of the State of Delaware will be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors or officers to us or our stockholders, (iii) any action asserting a claim against us arising pursuant to any provision of the Delaware General Corporation Law or our certificate of incorporation or bylaws, and (iv) any action asserting a claim against us 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.

The amendment of any of these provisions, with the exception of the ability of our board of directors to issue shares of preferred stock and designate any rights, preferences and privileges thereto, would require approval by the holders of at least 66-2/3% of our then-outstanding common stock.

Nasdaq Global Select Market Listing

Our common stock has been approved for listing on the Nasdaq Global Select Market under the symbol “ALLO.”

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC. The transfer agent’s address is 6201 15th Avenue, Brooklyn, NY 11219.

SHARES ELIGIBLE FOR FUTURE SALE

Immediately prior to this offering, there has been no public market for our common stock. Future sales of substantial amounts of common stock in the public market could adversely affect prevailing market prices. Furthermore, since only a limited number of shares will be available for sale shortly after this offering because of contractual and legal restrictions on resale described below, sales of substantial amounts of common stock in the public market after the restrictions lapse could adversely affect the prevailing market price for our common stock as well as our ability to raise equity capital in the future.

Based on the number of shares of common stock outstanding as of June 30, 2018, upon the closing of this offering and (i) the conversion of all of our outstanding shares of convertible preferred stock as of June 30, 2018 into an aggregate of 61,655,922 shares of common stock, (ii) the settlement of all outstanding 2018 Notes into an aggregate of 7,856,176 shares of common stock in connection with the closing of this offering (iii) no exercise of the underwriters' option to purchase additional shares of common stock and (iv) no exercise of outstanding options, an aggregate of 115,226,841 shares of common stock will be outstanding. All of the shares sold in this offering will be freely tradable in the public market without restriction or further registration under the Securities Act (excluding any shares sold to our directors and officers in the directed share program), unless held by an affiliate of ours. Except as set forth below, the remaining shares of common stock outstanding after this offering will be restricted as a result of securities laws or lock-up agreements. In addition, any shares sold in this offering to entities affiliated with our existing stockholders and directors will be subject to lock-up agreements. These remaining shares will generally become available for sale in the public market as follows:

- no restricted shares will be eligible for immediate sale upon the closing of this offering;
- up to 97,226,841 restricted shares will be eligible for sale under Rule 144 or Rule 701 upon expiration of lock-up agreements 180 days after the date of this offering; and
- the remainder of the restricted shares will be eligible for sale from time to time thereafter upon expiration of their respective holding periods under Rule 144, as described below, but could be sold earlier if the holders exercise any available registration rights.

Rule 144

In general, under Rule 144 as currently in effect, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, any person who is not an affiliate of ours and has held their shares for at least six months, including the holding period of any prior owner other than one of our affiliates, may sell shares without restriction, provided current public information about us is available. In addition, under Rule 144, any person who is not an affiliate of ours and has held their shares for at least one year, including the holding period of any prior owner other than one of our affiliates, would be entitled to sell an unlimited number of shares immediately upon the closing of this offering without regard to whether current public information about us is available. Beginning 90 days after the effective date of the registration statement of which this prospectus is a part, a person who is an affiliate of ours and who has beneficially owned restricted securities for at least six months, including the holding period of any prior owner other than one of our affiliates, is entitled to sell a number of restricted shares within any three-month period that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately shares immediately after this offering; or
- the average weekly trading volume of our common stock on the Nasdaq Global Select Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Sales of restricted shares under Rule 144 held by our affiliates are also subject to requirements regarding the manner of sale, notice and the availability of current public information about us. Rule 144 also provides that affiliates relying on Rule 144 to sell shares of our common stock that are not restricted shares must nonetheless comply with the same restrictions applicable to restricted shares, other than the holding period requirement.

Notwithstanding the availability of Rule 144, the holders of substantially all of our restricted shares have entered into lock-up agreements as described below and their restricted shares will become eligible for sale at the expiration of the restrictions set forth in those agreements.

Rule 701

Under Rule 701, shares of our common stock acquired upon the exercise of currently outstanding options or pursuant to other rights granted under our stock plans may be resold by:

- persons other than affiliates, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, subject only to the manner-of-sale provisions of Rule 144; and
- our affiliates, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, subject to the manner-of-sale and volume limitations, current public information and filing requirements of Rule 144, in each case, without compliance with the six-month holding period requirement of Rule 144.

As of June 30, 2018, options to purchase a total of 7,344,225 shares of common stock were outstanding, of which none were vested. Of the total number of shares of our common stock issuable under these options, substantially all are subject to contractual lock-up agreements with us or the underwriters described below under “Underwriting” and will become eligible for sale at the expiration of those agreements unless held by an affiliate of ours.

Lock-Up Agreements

We, along with our directors, executive officers and substantially all of our other stockholders and optionholders, have agreed that for a period of 180 days, after the date of this prospectus, except with the prior written consent of the representatives of the underwriters and subject to specified exceptions, we or they will not offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant for the sale of, or otherwise dispose of or transfer, any shares of common stock or any securities convertible into or exercisable or exchangeable for shares of common stock, or enter into any swap or other arrangement that transfers to another, in whole or in part, directly or indirectly, any of the economic consequences of ownership of the common stock. The representatives of the underwriters have advised us that they has no current intent or arrangement to release any of the shares subject to the lock-up agreements prior to the expiration of the lock-up agreements.

After this offering, certain of our employees, including our executive officers and/or directors, may enter into written trading plans that are intended to comply with Rule 10b5-1 under the Exchange Act. Sales under these trading plans would not be permitted until the expiration of the lock-up agreements relating to the offering described above.

Registration Rights

Upon the closing of this offering, the holders of an aggregate of 69,512,098 shares of our common stock will have rights, subject to certain conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. After registration pursuant to these rights, these shares will become freely tradable without restriction under the Securities Act. See “Description of Capital Stock—Registration Rights” for additional information regarding these registration rights.

Equity Incentive Plans

We intend to file with the SEC a registration statement on Form S-8 under the Securities Act covering the shares of common stock reserved for issuance under the Prior Plan, the 2018 Plan and the ESPP. The registration statement is expected to be filed and become effective as soon as practicable after the completion of this offering. Accordingly, shares registered under the registration statement will be available for sale in the open market following its effective date, subject to Rule 144 volume limitations and the lock-up agreements described above, if applicable.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS OF OUR COMMON STOCK

The following is a discussion of the material U.S. federal income tax consequences applicable to non-U.S. holders (as defined below) with respect to their purchase, ownership and disposition of shares of our common stock issued pursuant to this offering, but does not purport to be a complete analysis of all potential tax effects. All prospective non-U.S. holders of our common stock should consult their own tax advisors with respect to the U.S. federal income tax consequences of the purchase, ownership and disposition of our common stock, as well as any consequences arising under the laws of any other taxing jurisdiction, including any state, local and non-U.S. tax consequences and any U.S. federal non-income tax consequences. In general, a non-U.S. holder means a beneficial owner of our common stock (other than a partnership or an entity or arrangement treated as a partnership for U.S. federal income tax purposes) that is not, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation, or an entity treated as a corporation for U.S. federal income tax purposes, created or organized in the United States or under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust if (1) a U.S. court can exercise primary supervision over the trust's administration and one or more "United States persons" have the authority to control all of the trust's substantial decisions or (2) the trust has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a "United States person."

This discussion is based on current provisions of the U.S. Internal Revenue Code of 1986, as amended, which we refer to as the Code, existing U.S. Treasury Regulations promulgated thereunder, published administrative rulings and judicial decisions, all as in effect as of the date of this prospectus supplement. These laws are subject to change and to differing interpretation, possibly with retroactive effect. Any change or differing interpretation could alter the tax consequences to non-U.S. holders described in this prospectus supplement.

This discussion is limited to non-U.S. holders that hold shares of our common stock as a capital asset within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all aspects of U.S. federal income taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances, nor does it address any aspects of U.S. estate or gift tax, or any state, local or non-U.S. taxes. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as holders that own, or are deemed to own, more than 5% of our capital stock (except to the extent specifically set forth below), corporations that accumulate earnings to avoid U.S. federal income tax, tax-exempt organizations, banks, financial institutions, insurance companies, brokers, dealers or traders in securities, commodities or currencies, tax-qualified retirement plans, holders subject to the alternative minimum tax or Medicare contribution tax, holders who hold or receive our common stock pursuant to the exercise of employee stock options or otherwise as compensation, holders holding our common stock as part of a hedge, straddle or other risk reduction strategy, conversion transaction or other integrated investment, holders deemed to sell our common stock under the constructive sale provisions of the Code, controlled foreign corporations, passive foreign investment companies, U.S. expatriates and certain former citizens or long-term residents of the United States and "qualified foreign pension funds" as defined in Section 897(1)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds.

In addition, this discussion does not address the tax treatment of partnerships (or entities or arrangements that are treated as partnerships for U.S. federal income tax purposes) or persons that hold their common stock through such partnerships or such entities or arrangements. If a partnership, including any entity or arrangement

treated as a partnership for U.S. federal income tax purposes, holds shares of our common stock, the U.S. federal income tax treatment of a partner in such partnership will generally depend upon the status of the partner, the activities of the partnership and certain determinations made at the partner level. Such partners and partnerships should consult their own tax advisors regarding the tax consequences of the purchase, ownership and disposition of our common stock.

There can be no assurance that the Internal Revenue Service, which we refer to as the IRS, will not challenge one or more of the tax consequences described herein, and we have not obtained, nor do we intend to obtain, a ruling with respect to the U.S. federal income tax consequences with respect to the matters discussed below.

Distributions on Our Common Stock

Distributions, if any, on our common stock generally will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's adjusted tax basis in the common stock. Any remaining excess will be treated as capital gain from the sale or exchange of such common stock, subject to the tax treatment described below in "Gain on Sale, Exchange or Other Disposition of Our Common Stock."

Subject to the discussions below regarding effectively connected income, backup withholding and foreign accounts, dividends paid to a non-U.S. holder will generally be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty generally will be required to provide a properly executed IRS Form W-8BEN or W-8BEN-E (or successor form) and satisfy relevant certification and other requirements. Non-U.S. holders are urged to consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements. To claim the exemption, the non-U.S. holder must furnish to us or the applicable withholding agent a valid IRS Form W-8ECI (or applicable successor form), certifying that the dividends are effectively connected with the non-U.S. holder's conduct of a trade or business within the United States. However, such U.S. effectively connected income is taxed, on a net income basis, at the same graduated U.S. federal income tax rates applicable to "United States persons" (as defined in the Code), unless a specific treaty exemption applies. Any U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty.

Sale, Exchange or Other Disposition of Our Common Stock

Subject to the discussions below regarding backup withholding and foreign accounts, in general, a non-U.S. holder will not be subject to any U.S. federal income tax on any gain realized upon such holder's sale, exchange or other disposition of shares of our common stock unless:

- the gain is effectively connected with a U.S. trade or business of the non-U.S. holder and, if an applicable income tax treaty so provides, is attributable to a permanent establishment or a fixed base

maintained in the United States by such non-U.S. holder, in which case the non-U.S. holder generally will be taxed, on a net income basis, at the graduated U.S. federal income tax rates applicable to "United States persons" (as defined in the Code) and, if the non-U.S. holder is a foreign corporation, the branch profits tax described above in "Distributions on Our Common Stock" may also apply;

- the non-U.S. holder is a nonresident alien individual who is present in the United States for 183 days or more in the taxable year of the disposition and certain other conditions are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the net gain derived from the disposition, which may be offset by U.S. source capital losses of the non-U.S. holder, if any (even though the individual is not considered a resident of the United States), provided the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses; or
- our common stock constitutes a U.S. real property interest because we are, or have been, at any time during the five-year period preceding such disposition (or the non-U.S. holder's holding period, if shorter) a "U.S. real property holding corporation" (as defined in the Code). Even if we are or become a U.S. real property holding corporation, provided that our common stock is "regularly traded" (as defined in the applicable Treasury Regulations) on an established securities market, our common stock will be treated as a U.S. real property interest only with respect to a non-U.S. holder that holds more than 5% of our outstanding common stock, directly or indirectly, actually or constructively, during the shorter of the five-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. In such case, such non-U.S. holder generally will be taxed on its net gain derived from the disposition at the graduated U.S. federal income tax rates applicable to "United States persons" (as defined in the Code). Generally, a corporation is a U.S. real property holding corporation only if the fair market value of its U.S. real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we do not believe that we are, or have been, a U.S. real property holding corporation, or that we are likely to become one in the future. No assurance can be provided that our common stock will be regularly traded on an established securities market for purposes of the rules described above.

Backup Withholding and Information Reporting

We must report annually to the IRS and to each non-U.S. holder the gross amount of the dividends on our common stock paid to such holder and the tax withheld, if any, with respect to such dividends. Non-U.S. holders will have to comply with specific certification procedures to establish that the holder is not a "United States persons" (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to dividends on our common stock. U.S. backup withholding generally will not apply to a non-U.S. holder who provides a properly executed IRS Form W-8BEN or W-8BEN-E or otherwise establishes an exemption.

Information reporting and backup withholding will generally apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their own tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is established under the provisions of a specific income tax treaty or agreement.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder may be allowed as a credit against the non-U.S. holder's U.S. federal income tax liability, if any, and may entitle such holder to a refund, provided that the required information is timely furnished to the IRS.

Foreign Accounts

The Code generally imposes a U.S. federal withholding tax of 30% on dividends and the gross proceeds of a disposition of our common stock paid to a "foreign financial institution" (as specifically defined for this purpose), unless such institution enters into an agreement with the U.S. government to, among other things, withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding U.S. account holders of such institution (which may include certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners). Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the United States governing these withholding and reporting requirements may be subject to different rules. This U.S. federal withholding tax of 30% also applies to dividends and the gross proceeds of a disposition of our common stock paid to a non-financial foreign entity, unless such entity provides the withholding agent with either a certification that it does not have any substantial direct or indirect U.S. owners or information regarding substantial direct and indirect U.S. owners of the entity. The withholding tax described above will not apply if the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from the rules. The withholding provisions described above currently apply to dividends on our common stock and, beginning on January 1, 2019, will apply with respect to gross proceeds of a sale or other disposition of our common stock. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. Non-U.S. holders are encouraged to consult with their own tax advisors regarding the possible implications of these rules on their investment in our common stock.

EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR REGARDING THE TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED OR RECENT CHANGES IN APPLICABLE LAW, AS WELL AS TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL, NON-U.S. OR U.S. FEDERAL NON-INCOME TAX LAWS OR UNDER ANY APPLICABLE TAX TREATY.

UNDERWRITING

We and the underwriters named below have entered into an underwriting agreement with respect to the shares being offered. Subject to certain conditions, each underwriter has severally agreed to purchase the number of shares indicated in the following table. Goldman Sachs & Co. LLC, J.P. Morgan Securities LLC, Cowen and Company, LLC and Jefferies LLC are the representatives of the underwriters.

Underwriters	Number of Shares
Goldman Sachs & Co. LLC	5,400,000
J.P. Morgan Securities LLC	5,400,000
Cowen and Company, LLC	3,600,000
Jefferies LLC	3,600,000
Total	18,000,000

The underwriters are committed to take and pay for all of the shares being offered, if any are taken, other than the shares covered by the option described below unless and until this option is exercised.

The underwriters have an option to buy up to an additional 2,700,000 shares from us to cover sales by the underwriters of a greater number of shares than the total number set forth in the table above. They may exercise that option for 30 days. If any shares are purchased pursuant to this option, the underwriters will severally purchase shares in approximately the same proportion as set forth in the table above.

The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters by us. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase 2,700,000 additional shares.

Paid by us	No Exercise	Full Exercise
Per Share	$ 1.26	$ 1.26
Total	$ 22,680,000	$ 26,082,000

Shares sold by the underwriters to the public will initially be offered at the initial public offering price set forth on the cover of this prospectus. Any shares sold by the underwriters to securities dealers may be sold at a discount of up to $0.756 per share from the initial public offering price. After the initial offering of the shares, the representatives may change the offering price and the other selling terms. The offering of the shares by the underwriters is subject to receipt and acceptance and subject to the underwriters' right to reject any order in whole or in part.

We and our officers, directors, and holders of substantially all of our common stock have agreed with the underwriters, subject to certain exceptions, not to dispose of or hedge any of their common stock or securities convertible into or exchangeable for shares of common stock during the period from the date of this prospectus continuing through the date 180 days after the date of this prospectus, except with the prior written consent of the representatives. This agreement does not apply to any existing employee benefit plans. See "Shares Available for Future Sale" for a discussion of certain transfer restrictions.

Prior to the offering, there has been no public market for the shares. The initial public offering price has been negotiated among us and the representatives. Among the factors to be considered in determining the initial public offering price of the shares, in addition to prevailing market conditions, will be our historical performance, estimates of the business potential and our earnings prospects, an assessment of our management and the consideration of the above factors in relation to market valuation of companies in related businesses.

Our common stock has been approved for listing on the Nasdaq Global Select Market under the symbol "ALLO".

In connection with the offering, the underwriters may purchase and sell shares of common stock in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering, and a short position represents the amount of such sales that have not been covered by subsequent purchases. A "covered short position" is a short position that is not greater than the amount of additional shares for which the underwriters' option described above may be exercised. The underwriters may cover any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to cover the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase additional shares pursuant to the option described above. "Naked" short sales are any short sales that create a short position greater than the amount of additional shares for which the option described above may be exercised. The underwriters must cover any such naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Purchases to cover a short position and stabilizing transactions, as well as other purchases by the underwriters for their own accounts, may have the effect of preventing or retarding a decline in the market price of our stock, and together with the imposition of the penalty bid, may stabilize, maintain or otherwise affect the market price of the common stock. As a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. The underwriters are not required to engage in these activities and may end any of these activities at any time. These transactions may be effected on NYSE, NASDAQ NMS or relevant exchange, in the over-the-counter market or otherwise.

We estimate that our share of the total expenses of the offering, excluding underwriting discounts and commissions, will be approximately $3.5 million. We will reimburse the underwriters for certain of their expenses incurred in connection with this offering in an amount up to $50,000.

We have agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act.

The underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, brokerage and other financial and non-financial activities and services. Certain of the underwriters and their respective affiliates have provided, and may in the future provide, a variety of these services to the issuer and to persons and entities with relationships with the issuer, for which they received or will receive customary fees and expenses, including acting as a placement agent in our previous private placement financings. In addition, certain "related persons" of one of the underwriters received 34,602 shares of our common stock upon conversion of outstanding convertible promissory notes. Such securities are deemed to be underwriting compensation pursuant to FINRA Rule 5110 and will be subject to the lock-up requirements of FINRA Rule 5110(g)(1), and thus may not be sold or otherwise disposed of (including by means of any hedging or other arrangement that would result in the effective economic disposition by the holder thereof) for a period of 180 days following the effective date or commencement of sales of the offering, except as otherwise permitted by FINRA Rule 5110(g)(2).

In the ordinary course of their various business activities, the underwriters and their respective affiliates, officers, directors and employees may purchase, sell or hold a broad array of investments and actively trade

securities, derivatives, loans, commodities, currencies, credit default swaps and other financial instruments for their own account and for the accounts of their customers, and such investment and trading activities may involve or relate to assets, securities and/or instruments of the issuer (directly, as collateral securing other obligations or otherwise) and/or persons and entities with relationships with the issuer. The underwriters and their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such assets, securities or instruments and may at any time hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

At our request, the underwriters have reserved up to 900,000 shares of our common stock offered by this prospectus for sale, at the initial public offering price, to our directors and officers and certain other parties related to us. Shares purchased by our directors and officers will be subject to the 180-day lock-up restriction described in the "Underwriting" section of this prospectus. The number of shares of common stock available for sale to the general public will be reduced to the extent these individuals purchase such reserved shares. Any reserved shares that are not so purchased will be offered by the underwriters to the general public on the same basis as the other shares offered by this prospectus.

Selling Restrictions

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a "Relative Member State") an offer to the public of our common shares may not be made in that Relevant Member State, except that an offer to the public in that Relevant Member State of our common shares may be made at any time under the following exemptions under the Prospectus Directive:

- To any legal entity which is a qualified investor as defined in the Prospectus Directive;
- To fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the Representatives for any such offer; or
- In any other circumstances falling within Article 3(2) of the Prospectus Directive;

provided that no such offer or shares of our common stock shall result in a requirement for the publication by us or any Brazilian placement agent of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer to public" in relation to our common shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and our common shares to be offered so as to enable an investor to decide to purchase our common shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression "Prospectus Directive" means Directive 2003/71/EC (as amended), including by Directive 2010/73/EU and includes any relevant implementing measure in the Relevant Member State.

This European Economic Area selling restriction is in addition to any other selling restrictions set out below.

United Kingdom

In the United Kingdom, this prospectus is only addressed to and directed as qualified investors who are (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the Order); or (ii) high net worth entities and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such persons together being

referred to as "relevant persons"). Any investment or investment activity to which this prospectus relates is available only to relevant persons and will only be engaged with relevant persons. Any person who is not a relevant person should not act or relay on this prospectus or any of its contents.

Canada

The securities may be sold in Canada only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions, and Ongoing Registrant Obligations. Any resale of the securities must be made in accordance with an exemption form, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this offering memorandum (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Hong Kong

The shares may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32 of the Laws of Hong Kong) ("Companies (Winding Up and Miscellaneous Provisions) Ordinance") or which do not constitute an invitation to the public within the meaning of the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong) ("Securities and Futures Ordinance"), or (ii) to "professional investors" as defined in the Securities and Futures Ordinance and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance, and no advertisement, invitation or document relating to the shares may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" in Hong Kong as defined in the Securities and Futures Ordinance and any rules made thereunder.

Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor (as defined under Section 4A of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA")) under Section 274 of the SFA, (ii) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to conditions set forth in the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor, the securities (as defined in Section 239(1) of the SFA) of that corporation shall not be transferable for 6 months after that corporation has acquired the shares under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer in that corporation's securities pursuant to Section 275(1A) of the SFA, (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA, or (6) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore ("Regulation 32")

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is a trust (where the trustee is not an accredited investor (as defined in Section 4A of the SFA)) whose sole purpose is to hold investments and each beneficiary of the trust is an accredited investor, the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferable for 6 months after that trust has acquired the shares under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer that is made on terms that such rights or interest are acquired at a consideration of not less than S$200,000 (or its equivalent in a foreign currency) for each transaction (whether such amount is to be paid for in cash or by exchange of securities or other assets), (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA, or (6) as specified in Regulation 32.

Japan

The securities have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended), or the FIEA. The securities may not be offered or sold, directly or indirectly, in Japan or to or for the benefit of any resident of Japan (including any person resident in Japan or any corporation or other entity organized under the laws of Japan) or to others for reoffering or resale, directly or indirectly, in Japan or to or for the benefit of any resident of Japan, except pursuant to an exemption from the registration requirements of the FIEA and otherwise in compliance with any relevant laws and regulations of Japan.

LEGAL MATTERS

The validity of the shares of common stock being offered by this prospectus will be passed upon for us by Cooley LLP, San Diego, California. The underwriters are being represented by Latham & Watkins LLP, Menlo Park, California.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our financial statements at December 31, 2017 and for the period from November 30, 2017 (inception) to December 31, 2017, as set forth in their report. We have included our financial statements in the prospectus and elsewhere in the registration statement in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act, with respect to the shares of common stock being offered by this prospectus. This prospectus does not contain all of the information in the registration statement and its exhibits. For further information with respect to us and the common stock offered by this prospectus, we refer you to the registration statement and its exhibits. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You can read our SEC filings, including the registration statement, over the Internet at the SEC's website at www.sec.gov. You may also read and copy any document we file with the SEC at its public reference facilities at 100 F Street NE, Washington, D.C. 20549. You may also obtain copies of these documents at prescribed rates by writing to the Public Reference Section of the SEC at 100 F Street N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference facilities. You may also request a copy of these filings, at no cost, by writing us at 210 East Grand Avenue, South San Francisco, California 94080 or telephoning us at (650) 457-2700.

Upon the completion of this offering, we will be subject to the information reporting requirements of the Exchange Act, and we will file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information will be available for inspection and copying at the public reference room and website of the SEC referred to above. We also maintain a website at www.allogene.com, at which, following the completion of this offering, you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information contained in, or that can be accessed through, our website is not incorporated by reference in, and is not part of, this prospectus.

ALLOGENE THERAPEUTICS, INC.

INDEX TO FINANCIAL STATEMENTS

Period From November 30, 2017 (inception) to December 31, 2017 and Six Months Ended June 30, 2018

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of
Allogene Therapeutics, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheet of Allogene Therapeutics, Inc. (the Company) as of December 31, 2017, the related statements of operations and comprehensive loss, convertible preferred stock and stockholders' deficit and cash flows for the period from November 30, 2017 (inception) to December 31, 2017, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2017, and the results of its operations and its cash flows for the period ended December 31, 2017, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audit. 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 U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit 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 financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audit included performing procedures to assess the risks of material misstatement of the 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 financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2018.
Redwood City, California
August 10, 2018, except for the fifth paragraph of Note 1, as to which the date is October 1, 2018

ALLOGENE THERAPEUTICS, INC.

Balance Sheets

(in thousands, except share and per share amounts)

	December 31, 2017	June 30, 2018 (Unaudited)	Pro Forma June 30, 2018 (Unaudited)
Assets			
Current assets:			
Cash and cash equivalents	$ —	$ 143,927	$ 293,927
Prepaid expenses and other current assets	—	337	337
Total current assets	—	144,264	294,264
Property and equipment, net	—	3,526	3,526
Intangible assets, net	—	1,055	1,055
Total assets	$ —	$ 148,845	$ 298,845
Liabilities, convertible preferred stock and stockholders' (deficit) equity			
Current liabilities:			
Accounts payable	$ —	$ 1,268	$ 1,268
Accrued and other current liabilities	2	13,477	13,477
Total current liabilities	2	14,745	14,745
Other long-term liabilities	—	2,488	2,488
Total liabilities	2	17,233	17,233
Commitments and Contingencies (Notes 5 and 6)			
Convertible preferred stock, $0.001 par value; 1,000,000 and 11,743,987 shares authorized as of December 31, 2017 and June 30, 2018 (unaudited), respectively; no shares and 11,743,987 shares issued and outstanding as of December 31, 2017 and June 30, 2018 (unaudited), respectively, actual; aggregate liquidation preference of $411.8 million as of June 30, 2018 (unaudited), actual; no shares issued and outstanding as of June 30, 2018, pro forma (unaudited)	—	411,052	—
Subscriptions receivable from preferred stockholders	—	(150,000)	—
Stockholders' (deficit) equity:			
Common stock, $0.001 par value: 47,250,000 and 101,000,000 shares authorized as of December 31, 2017 and June 30, 2018 (unaudited), respectively; 26,249,993 and 27,714,743 shares issued and outstanding at December 31, 2017 and June 30, 2018 (unaudited), respectively, actual; 89,370,665 shares issued and outstanding at June 30, 2018, pro forma (unaudited)	26	28	89
Notes receivable from common stockholders	(5)	—	—
Additional paid-in capital	—	8,054	419,045
Accumulated deficit	(23)	(137,522)	(137,522)
Total stockholders' (deficit) equity	(2)	(129,440)	281,612
Total liabilities, convertible preferred stock and stockholders' (deficit) equity	$ —	$ 148,845	$ 298,845

The accompanying notes are an integral part of these financial statements.

ALLOGENE THERAPEUTICS, INC.

Statements of Operations and Comprehensive Loss
(in thousands, except share and per share amounts)

	Period from November 30, 2017 (Inception) to December 31, 2017	Six Months Ended June 30, 2018 (Unaudited)
Operating expenses:		
Research and development	$ —	$ 122,486
General and administrative	2	15,123
Total operating expenses	2	137,609
Loss from operations	(2)	(137,609)
Interest and other income, net	—	110
Net and comprehensive loss	$ (2)	$ (137,499)
Net loss per share, basic and diluted	$ 0.00	$ (9.42)
Weighted-average number of shares used in computing net loss per share, basic and diluted	26,249,993	14,600,379
Pro forma net loss per share, basic and diluted (unaudited)		$ (3.12)
Weighted-average number of shares used in computing pro forma net loss per share, basic and diluted (unaudited)		44,011,274

The accompanying notes are an integral part of these financial statements.

ALLOGENE THERAPEUTICS, INC.

Statements of Convertible Preferred Stock and Stockholders' Deficit

(in thousands, except share and per share amounts)

	Convertible Preferred Stock		Subscriptions Receivable from Preferred Stockholders	Common Stock		Notes Receivable from Common Stockholders	Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount		Shares	Amount				
Balance — November 30, 2017 (Inception)	—	$ —	$ —	—	$ —	$ —	$ —	$ —	$ —
Issuance of common stock	—	—	—	26,249,993	26	—	—	(21)	5
Notes receivable from common stockholders	—	—	—	—	—	(5)	—	—	(5)
Net and comprehensive loss	—	—	—	—	—	—	—	(2)	(2)
Balance — December 31, 2017	—	—	—	26,249,993	26	(5)	—	(23)	(2)
Issuance of Series A convertible preferred shares at $35.06 per share, net of issuance costs of $635 (unaudited)	7,557,990	264,365	—	—	—	—	—	—	—
Issuance of Series A-1 convertible preferred shares at $35.06 per share in connection with asset acquisition (unaudited)	3,187,772	111,770	—	—	—	—	—	—	—
Issuance of Series A-1 convertible preferred shares at $35.06 per share, net of issuance costs of $84 (unaudited)	998,225	34,917	—	—	—	—	—	—	—
Subscriptions receivable from preferred stockholders (unaudited)	—	—	(150,000)	—	—	—	—	—	—
Proceeds received from common stockholders (unaudited)	—	—	—	—	—	5	—	—	5
Issuance of common stock for early exercise of stock options (unaudited)	—	—	—	1,464,750	1	—	—	—	1
Stock-based compensation (unaudited)	—	—	—	—	—	—	8,056	—	8,056
Net and comprehensive loss (unaudited)	—	—	—	—	—	—	—	(137,499)	(137,499)
Adjustment for fractional shares from forward stock split					1		(2)		(1)
Balance — June 30, 2018 (unaudited)	11,743,987	$411,052	$ (150,000)	27,714,743	$ 28	$ —	$ 8,054	$ (137,522)	$ (129,440)

The accompanying notes are an integral part of these financial statements.

ALLOGENE THERAPEUTICS, INC.

Statements of Cash Flows
(in thousands)

	Period From November 30, 2017 (Inception) to December 31, 2017	Six Months Ended June 30, 2018 (Unaudited)
Cash flows from operating activities:		
Net loss	$ (2)	$ (137,499)
Adjustments to reconcile net loss to net cash used in operating activities:		
Acquired in-process research and development	—	109,436
Amortization of other intangible assets acquired	—	151
Depreciation and amortization of fixed assets	—	299
Stock-based compensation	—	8,056
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	—	(337)
Accounts payable	—	1,268
Accrued and other current liabilities	2	12,584
Net cash used in operating activities	—	(6,042)
Cash flows from investing activities:		
Purchase of property and equipment	—	(536)
Cash paid for acquisition of assets	—	(2,098)
Net cash used in investing activities	—	(2,634)
Cash flows from financing activities:		
Proceeds from issuance of convertible preferred stock, net of issuance costs	—	149,282
Proceeds from issuance of common stock and upon exercise of stock options	—	3,321
Net cash provided by financing activities	—	152,603
Net increase in cash and cash equivalents	—	143,927
Cash and cash equivalents — beginning of period	—	—
Cash and cash equivalents — end of period	$ —	$ 143,927
Non-cash investing and financing activities:		
Subscriptions receivable from common shareholders	$ 5	$ —
Subscriptions receivable from preferred shareholders	$ —	$ 150,000
Series A-1 convertible preferred stock issued in asset acquisition	$ —	$ 111,770
Property and equipment purchase in accounts payable and accrued liabilities	$ —	$ 60

The accompanying notes are an integral part of these financial statements.

ALLOGENE THERAPEUTICS, INC.

Notes to the Financial Statements

(Information as of June 30, 2018 and for the six months ended June 30, 2018 is unaudited)

1. Basis of Presentation

Allogene Therapeutics, Inc. (the Company or Allogene) was incorporated on November 30, 2017 in the State of Delaware and is headquartered in South San Francisco, California. Allogene is a clinical-stage immuno-oncology company pioneering the development and commercialization of genetically engineered allogeneic T cell therapies for the treatment of cancer. The Company is developing a pipeline of off-the-shelf T cell product candidates that are designed to target and kill cancer cells.

For the period from November 30, 2017 (inception) to December 31, 2017, the Company incurred $2,000 in start-up costs to establish the Company. Principal operations commenced in April 2018 when Allogene acquired certain assets from Pfizer Inc. (Pfizer) (see Note 5) and completed a Series A and A-1 preferred stock financing (see Note 7).

Need for Additional Capital

The Company has sustained operating losses and expects to continue to generate operating losses for the foreseeable future. The Company's ultimate success depends on the outcome of its research and development activities. The Company had cash and cash equivalents of $143.9 million and subscriptions receivable from its preferred shareholders of $150.0 million as of June 30, 2018. Since inception through June 30, 2018, the Company has incurred cumulative net losses of $137.5 million. Management expects to incur additional losses in the future to fund its operations and conduct product research and development and recognizes the need to raise additional capital to fully implement its business plan.

The Company intends to raise such additional capital through the issuance of equity securities, debt financings or other sources. However, if such financing is not available at adequate levels, the Company will need to reevaluate its operating plan and may be required to delay the development of its product candidates. Management considers that there are no conditions or events, in the aggregate, that raise substantial doubt about the entity's ability to continue as a going concern for a period of at least one year from the date the financial statements are issued. The Company expects that its cash and cash equivalents as of June 30, 2018 and amounts received in July and August 2018 from its subscriptions receivable (see Note 12) will be sufficient to fund its operations through 2019.

Forward Stock Split

On October 1, 2018, the Company filed an amendment to the Company's amended and restated certificate of incorporation to effect a forward split of shares of the Company's common stock on a 1-for-5.25 basis (the "Forward Stock Split"). In connection with the Forward Stock Split, the conversion ratio for the Company's outstanding convertible preferred stock was proportionately adjusted such that the common stock issuable upon conversion of such preferred stock was increased in proportion to the Forward Stock Split. The par value of the common stock was not adjusted as a result of the Forward Stock Split. All references to common stock, options to purchase common stock, early exercised options, share data, per share data, convertible preferred stock (to the extent presented on an as-converted to common stock basis) and related information contained in the financial statements have been retrospectively adjusted to reflect the effect of the Forward Stock Split for all periods presented.

2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP) requires management to make estimates and assumptions that affect the reported

ALLOGENE THERAPEUTICS, INC.

Notes to the Financial Statements

(Information as of June 30, 2018 and for the six months ended June 30, 2018 is unaudited)

amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements and the reported amounts of expenses during the reporting period. Significant estimates and assumptions made in the accompanying financial statements include but are not limited to the fair value of common stock, the fair value of stock options, income tax uncertainties, and certain accruals. The Company evaluates its estimates and assumptions on an ongoing basis using historical experience and other factors and adjusts those estimates and assumptions when facts and circumstances dictate. Actual results could differ from those estimates.

Unaudited Interim Financial Information

The accompanying interim balance sheet as of June 30, 2018, the interim statements of operations and comprehensive loss and cash flows for the six months ended June 30, 2018 and the interim statements of convertible preferred stock and stockholders' deficit for the six months ended June 30, 2018 are unaudited. The unaudited interim financial statements have been prepared on the same basis as the annual financial statements and, in the opinion of management, reflect all adjustments, which include only normal recurring adjustments, necessary to present fairly the balance sheet as of June 30, 2018, the statements of operations and comprehensive loss and cash flows for the six months ended June 30, 2018 and the statements of convertible preferred stock and stockholders' deficit for the six months ended June 30, 2018. The financial data disclosed in these notes to the financial statements related to the six months ended June 30, 2018 and as of June 30, 2018 are also unaudited. The results of operations for the six months ended June 30, 2018 are not necessarily indicative of the results to be expected for the full year ending December 31, 2018, or for any other future annual or interim period.

Unaudited Pro Forma Balance Sheet

The unaudited pro forma balance sheet as of June 30, 2018 reflects the conversion of all shares of the Company's outstanding convertible preferred stock into 61,655,922 shares of common stock immediately prior to the consummation of an initial public offering (IPO) and the receipt of the $150.0 million in subscriptions receivable from the preferred stockholders that were received in July and August 2018. The shares of common stock issuable and the proceeds expected to be received in the IPO are excluded from such pro forma financial information.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with original maturities of three months or less from the purchase date to be cash equivalents. Cash equivalents consist primarily of amounts invested in money market accounts.

Fair Value Measurement

Assets and liabilities recorded at fair value on a recurring basis in the balance sheets are categorized based upon the level of judgment associated with the inputs used to measure their fair values. Fair value is defined as the exchange price that would be received for an asset or an exit price that would be paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The authoritative guidance on fair value measurements establishes a three-tier fair value hierarchy for disclosure of fair value measurements as follows:

Level 1—Observable inputs such as unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date.

ALLOGENE THERAPEUTICS, INC.

Notes to the Financial Statements

(Information as of June 30, 2018 and for the six months ended June 30, 2018 is unaudited)

Level 2—Inputs (other than quoted prices included in Level 1) are either directly or indirectly observable for the asset or liability. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.

Level 3— Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Property and Equipment, Net

Property and equipment are stated at cost less accumulated depreciation and amortization. Depreciation is computed on a straight-line basis over the estimated useful lives of the related assets, generally three to seven years. Maintenance and repairs are charged to operations as incurred. Upon sale or retirement of assets, the cost and related accumulated depreciation are removed from the balance sheet and the resulting gain or loss is reflected in operations.

Definite-Lived Intangible Assets

Identifiable intangible assets consist of in-process research and development and workforce associated with asset acquisition. Intangible assets with finite lives are amortized over their estimated useful lives on a straight-line basis, generally two years. Acquired in-process research and development intangible assets with no alternative future use are charged to research and development expense when acquired. The straight-line method of amortization represents the Company's best estimate of the distribution of the economic value of the identifiable intangible assets. Intangible assets are carried at cost less accumulated amortization. Amortization of intangible assets is included in research and development expenses.

Impairment of Long-Lived Assets

Long-lived assets are reviewed annually for impairment or whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability is measured by comparison of the carrying amount of an asset group to the future net undiscounted cash flows that the assets are expected to generate. If the carrying amount of an asset group exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset group exceeds the fair value of the asset group. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the projected discounted future net cash flows arising from the asset. There has been no impairment of long-lived assets for any of the periods presented.

Deferred Offering Costs

Deferred offering costs, consisting of legal, accounting and filing fees relating to an IPO, are capitalized. The deferred offering costs will be offset against offering proceeds upon the completion of the offering. In the event the offering is terminated or delayed, deferred offering costs will be expensed. No deferred offering costs were incurred during the six months ended June 30, 2018.

Accrued Research and Development Costs

The Company records accrued liabilities for estimated costs of research and development activities conducted by collaboration partners and third-party service providers, which include the conduct of preclinical studies and clinical trials, and contract manufacturing activities. The Company records the estimated costs of research and

ALLOGENE THERAPEUTICS, INC.

Notes to the Financial Statements

(Information as of June 30, 2018 and for the six months ended June 30, 2018 is unaudited)

development activities based upon the estimated amount of services provided but not yet invoiced, and includes these costs in accrued and other current liabilities on the balance sheets and within research and development expense on the statements of operations.

The Company accrues for these costs based on factors such as estimates of the work completed and in accordance with agreements established with its collaboration partners and third-party service providers. The Company makes significant judgments and estimates in determining the accrued liabilities balance in each reporting period. As actual costs become known, the Company adjusts its accrued liabilities. The Company has not experienced any material differences between accrued costs and actual costs incurred since its inception.

Research and Development Expenses

Research and development costs are expensed as incurred. Research and development expenses for the six months ended June 30, 2018 primarily consist of acquired intangible assets as research and development costs pursuant to the Asset Contribution Agreement with Pfizer (see Note 5) as, at the time of acquisition of the asset, the technology is under development; is not approved by the U.S. Food and Drug Administration or other regulatory agencies for marketing; has not reached technical feasibility; or otherwise has no foreseeable alternative future use. For the six months ended June 30, 2018, the Company recognized expense of $109.4 million related to the acquired intangible in-process research and development.

Research and development expenses also include costs incurred for internal and sponsored and collaborative research and development activities. Research and development costs consist of salaries and benefits, including associated stock-based compensation, and laboratory supplies and facility costs, as well as fees paid to other entities that conduct certain research and development activities on the Company's behalf. Costs associated with co-development activities performed under the various license and collaboration agreements are included in research and development expenses.

Stock-Based Compensation

The Company measures its stock-based awards granted to employees and directors based on the estimated fair values of the awards and recognizes the compensation over the requisite service period. The Company uses the Black-Scholes option-pricing model to estimate the fair value of its stock-based awards. Stock-based compensation is recognized using the straight-line method. As the stock compensation expense is based on awards ultimately expected to vest, it is reduced by forfeitures. The Company accounts for forfeitures as they occur.

Income Taxes

Income taxes are accounted for under the asset and liability method. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to affect taxable income. Management makes an assessment of the likelihood that the resulting deferred tax assets will be realized. A valuation allowance is provided when it is more likely than not that some portion or all of a deferred tax asset will not be realized. Due to the Company's historical operating performance and the recorded cumulative net losses in prior fiscal periods, the net deferred tax assets have been fully offset by a valuation allowance.

The Company recognizes uncertain income tax positions at the largest amount that is more likely than not to be sustained upon audit by the relevant taxing authority. An uncertain income tax position will not be recognized if

ALLOGENE THERAPEUTICS, INC.

Notes to the Financial Statements

(Information as of June 30, 2018 and for the six months ended June 30, 2018 is unaudited)

it has less than a 50% likelihood of being sustained. Changes in recognition or measurement are reflected in the period in which judgment occurs. The Company's policy is to recognize interest and penalties related to the underpayment of income taxes as a component of the provision for income taxes.

Comprehensive Loss

Comprehensive loss is composed of net loss and other comprehensive income or loss. To date, the Company has not had any transactions that are required to be reported in comprehensive loss other than the net loss incurred from operations.

Net Loss Per Share

Basic net loss per share is calculated by dividing the net loss by the weighted-average number of shares of common stock outstanding for the period, without consideration for potential dilutive shares of common stock. Since the Company was in a loss position for all periods presented, basic net loss per share is the same as diluted net loss per share since the effects of potentially dilutive securities are antidilutive. Shares of common stock subject to repurchase are excluded from the weighted-average shares.

Unaudited Pro Forma Net Loss Per Share

Pro forma basic and diluted net loss per share has been computed to give effect to the conversion of the shares of the Company's convertible preferred stock into common stock as if such conversion had occurred at the beginning of the period. The pro forma net loss per share does not include the shares expected to be sold and related proceeds to be received from an IPO.

Segments

Operating segments are defined as components of an entity for which separate financial information is available and that is regularly reviewed by the Chief Operating Decision Maker (CODM) in deciding how to allocate resources to an individual segment and in assessing performance. The Company's CODM is its Chief Executive Officer. The Company has determined it operates in a single operating segment and has one reportable segment.

Emerging Growth Company Status

The Company is an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012 (the JOBS Act). Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. The Company has elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that it is (i) no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, these financial statements may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates.

Recently Adopted Accounting Pronouncements

In March 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update No. 2016-09, *Stock Compensation—Improvements to Employee Share-Based Payment Accounting* (ASU

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Notes to the Financial Statements

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2016-09). ASU 2016-09 was issued to simplify accounting guidance by identifying, evaluating, and improving areas for which cost and complexity can be reduced while maintaining or improving the usefulness of the information provided to users of financial statements. The areas affected by ASU 2016-09 include accounting for income taxes, classification of excess tax benefits on the statement of cash flows, minimum statutory tax withholding requirements, and classification of employee taxes paid on the statement of cash flows when an employer withholds shares for tax-withholding purposes. In addition, under this guidance, an entity can make an accounting policy election to either estimate the number of awards that are expected to vest or account for forfeitures when they occur. The Company adopted this guidance beginning with the period from November 30, 2017 (inception) to December 31, 2017, and elected a policy to account for forfeitures as they occur.

In January 2017, the FASB issued Accounting Standards Update, *Business Combinations (Topic 805): Clarifying the Definition of a Business* (ASU 2017-01). ASU 2017-01 clarifies the framework for determining whether an integrated set of assets and activities meets the definition of a business. The revised framework establishes a screen for determining whether an integrated set of assets and activities is a business and narrows the definition of a business. The screen requires that when substantially all of the fair value of the gross assets acquired (or disposed of) is concentrated in a single identifiable asset or a group of similar identifiable assets, the set is not a business. This screen reduces the number of transactions that need to be further evaluated. This new accounting guidance is effective for public or private companies for fiscal years beginning after December 15, 2017, including interim periods within those fiscal years. Early adoption is permitted. The new accounting guidance should be applied prospectively on or after the effective date. The Company adopted this guidance on January 1, 2018.

In June 2018, the FASB issued Accounting Standards Update No. 2018-07, *Improvements to Nonemployee Share-Based Payment Accounting* (ASU 2018-07). ASU 2018-07 simplifies the accounting for share-based payments to nonemployees by aligning it with the accounting for share-based payments to employees, with certain exceptions. Some of the areas of simplification apply only to nonpublic entities. For all entities, the amendments are effective for annual periods beginning after December 15, 2019, and interim periods within annual periods beginning after December 15, 2020. Early adoption is permitted for any entity in any interim or annual period for which financial statements haven’t been issued or made available for issuance, but not before an entity adopts ASC 606. The Company early adopted this guidance on January 1, 2018.

Recent Accounting Pronouncements

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, *Leases* (ASU 2016-02), which provides accounting guidance for both lessee and lessor accounting models. The principle of ASU 2016-02 is that a lessee should recognize the assets and liabilities that arise from leases. Lessees will need to recognize a right-of-use asset and a lease liability for virtually all of their leases (other than leases that meet the definition of a short-term lease). The liability will be equal to the present value of lease payments. The asset will be based on the liability. For income statement purposes, ASU 2016-02 requires leases to be classified as either operating or finance. Operating leases will result in straight-line expense while finance leases will result in a front-loaded expense pattern. ASU 2016-02 is effective for public companies for fiscal years beginning after December 15, 2018. For all other entities, this standard is effective for annual reporting periods beginning after December 15, 2019, and interim periods within annual periods beginning after December 15, 2020. Early adoption is permitted. The new standard must be adopted using a modified-retrospective transition and provides for certain practical expedients. The Company is currently evaluating the effects of the adoption of this ASU on its financial statements.

ALLOGENE THERAPEUTICS, INC.

Notes to the Financial Statements

(Information as of June 30, 2018 and for the six months ended June 30, 2018 is unaudited)

3. Fair Value Measurements

The Company measures and reports its cash equivalents at fair value.

Money market funds are measured at fair value on a recurring basis using quoted prices and are classified as Level 1. There were no transfers between Levels 1, 2 or 3 for any of the periods presented. As of June 30, 2018, the Company held $125.0 million in money market funds (Level 1) with no unrealized gains or losses.

4. Balance Sheet Components

Property and Equipment, Net

Property and equipment, net consists of the following:

	December 31, 2017	June 30, 2018
	(In thousands)	
Laboratory equipment	$ —	$3,755
Computer equipment and software	—	70
	—	3,825
Less: Accumulated depreciation and amortization	—	(299)
Total property and equipment, net	$ —	$3,526

Depreciation and amortization expense for property and equipment amounted to $0.3 million for the six months ended June 30, 2018.

Intangible Assets, Net

The intangible assets consist of the following:

	June 30, 2018		
	Cost	Accumulated Amortization	Carrying value
		(In thousands)	
Assembled workforce	$ 1,206	$ (151)	$ 1,055

As of June 30, 2018, the weighted-average remaining amortization period of the assembled workforce was 1.76 years. Amortization expense related to the other intangible asset was $0.2 million for the six months ended June 30, 2018.

Accrued Liabilities

Accrued liabilities consist of the following:

	December 31, 2017	June 30, 2018
	(In thousands)	
Accrued research and development expenses	$ —	$ 8,621
Accrued compensation	—	1,777
Other	2	3,079
Total accrued liabilities	$ 2	$13,477

ALLOGENE THERAPEUTICS, INC.

Notes to the Financial Statements

(Information as of June 30, 2018 and for the six months ended June 30, 2018 is unaudited)

5. Asset Acquisition

In April 2018, the Company entered into an Asset Contribution Agreement (the Pfizer Agreement) with Pfizer pursuant to which the Company acquired certain assets, including certain contracts described in Note 6, and intellectual property for the development and administration of CAR T cells for the treatment of cancer.

As consideration for the purchased assets, the Company issued Pfizer 3,187,772 shares of its Series A-1 convertible preferred stock with an estimated fair value of $111.8 million or $35.06 per share. The Company also incurred $2.1 million of direct expenses related to the asset acquisition, bringing the total consideration to $113.9 million. The fair value of the Series A-1 convertible preferred stock was established using the price per share paid by third-party investors in the concurrent closing of the Series A and A-1 convertible preferred stock financing of $35.06 per share as well as the price per share paid by Pfizer to purchase additional shares of Series A-1 convertible preferred stock at $35.06 per share at the same time and at the same price per share as the rest of Series A and A-1 financing (see Note 7 for additional details). The Series A-1 convertible preferred shares issued to Pfizer have the same rights, preferences and privileges as the Series A convertible preferred shares issued to the third-party investors.

The Company accounted for the transaction as an asset acquisition as substantially all of the estimated fair value of the gross assets acquired was concentrated in a single identified asset, anti-CD19 CAR T cell therapy, thus satisfying the requirements of the screen test in ASU 2017-01. The assets acquired in the transaction were measured based on the fair value of the Series A-1 convertible preferred stock issued to Pfizer and direct transaction costs of $2.1 million, as the fair value of the equity given was more readily determinable than the fair value of the assets received. The following table summarizes the fair value of assets acquired (in thousands):

Property and equipment	$ 3,258
In-process research and development (IPR&D):	
anti-CD19 CAR T cell therapy	103,936
anti-BCMA CAR T cell therapy	5,500
Assembled workforce	1,206
Total assets acquired	$ 113,900

The estimated fair values of anti-CD19 CAR T cell therapy and anti-BCMA CAR T cell therapy were determined using a risk-adjusted discounted cash flow approach, which used the present value of the direct cash flows expected to be generated by anti-CD19 CAR T cell therapy and anti-BCMA CAR T cell therapy during their estimated economic lives, net of returns on contributory assets such as working capital, property and equipment, and the assembled workforce. The discount rate of 16.5% was based on rates of return available from alternative investments of similar type and quality as of the valuation date. The remaining IPR&D targets were determined to be more conceptual in nature with nominal value being attributed to them. The estimate of the fair value of the assembled workforce was determined using a replacement cost approach, based off the estimated cost of recruiting and training an equivalent workforce as of the acquisition date.

The amount allocated to intangible IPR&D assets was charged to research and development expense as these assets had no alternative future use at the time of the acquisition transaction. The remaining intangible asset relates to the assembled workforce which was capitalized and is being amortized over its estimated economic life of two years.

In addition, under the terms of the Pfizer Agreement, the Company is also required to make milestone payments to Pfizer of $30.0 million or $60.0 million per target (depending on the target, and $840.0 million in the

ALLOGENE THERAPEUTICS, INC.

Notes to the Financial Statements

(Information as of June 30, 2018 and for the six months ended June 30, 2018 is unaudited)

aggregate for all targets) upon successful completion of certain regulatory and sales milestones for certain targets covered by the Pfizer Agreement. These contingent payments are not part of the consideration for the purchased assets.

As part of the asset acquisition, the Company also assumed licensing agreements Pfizer had entered into with two third-party entities holding certain intellectual property. Both agreements cover use of the intellectual property held by the parties and certain research collaboration activities. See Note 6 for additional details on these agreements.

Under the Pfizer Agreement, the Company is required to use commercially reasonable efforts to develop and seek regulatory approval in and for the United States and the European Union for certain products covered by the Pfizer Agreement and to commercialize each product covered by the Pfizer Agreement in the applicable royalty territory in which regulatory approval for such product has been obtained.

6. License Agreements and Other Commitments

Asset Contribution Agreement with Pfizer

In connection with the Pfizer Agreement (see Note 5), the Company is required to make milestone payments upon successful completion of regulatory and sales milestones on a target-by-target basis for the targets including CD19 and BCMA, covered by the Pfizer Agreement. The aggregate potential milestone payments upon successful completion of various regulatory milestones in the United States and the European Union are $30.0 million or $60.0 million, depending on the target, with aggregate potential regulatory and development milestones of up to $840.0 million, provided that we are not obligated to pay a milestone for regulatory approval in the European Union for an anti-CD19 allogeneic CAR T cell product, to the extent Servier has commercial rights to such territory. The aggregate potential milestone payments upon reaching certain annual net sales thresholds in North America, Europe, Asia, Australia and Oceania (the Territory) for a certain number of targets covered by the Pfizer Agreement are $325.0 million per target. The sales milestones in the foregoing sentence are payable on a country-by-country basis until the last to expire of any Pfizer Royalty Term, as described below, for any product in such country in the Territory.

Pfizer is also eligible to receive, on a product-by-product and country-by-country basis, royalties in single-digit percentages on annual net sales for products covered by the Pfizer Agreement or that use certain Pfizer intellectual property and for which an IND is first filed on or before April 6, 2023. The Company’s royalty obligation with respect to a given product in a given country begins upon the first sale of such product in such country and ends on the later of (i) expiration of the last claim of any applicable patent or (ii) 12 years from the first sale of such product in such country.

Research Collaboration and License Agreement with Cellectis

As part of the Pfizer Agreement (see Note 5), Pfizer assigned to the Company a Research Collaboration and License Agreement (the Cellectis Agreement), with Cellectis S.A. (Cellectis). Pursuant to the Cellectis Agreement, the Company has an exclusive, worldwide, royalty-bearing, sublicensable license, on a target-by-target basis, under certain of Cellectis’s intellectual property to make, use, sell, import, and otherwise commercialize products directed at certain targets for the treatment of cancer.

The Cellectis Agreement included a research collaboration to conduct discovery and pre-clinical development activities to generate CAR T cells directed at targets selected by each party. Pursuant to the terms of the Cellectis

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Agreement, the research collaboration ended in June 2018. Cellectis has a non-exclusive, worldwide, royalty-free, perpetual and irrevocable license, with sublicensing rights under certain conditions, under certain of the Company's intellectual property to conduct research, and to make, use, sell, import and otherwise commercialize products directed at Cellectis-selected targets.

The Cellectis Agreement requires Allogene to make payments of up to $185.0 million per product that is directed against a Company-selected target, with aggregate maximum potential pre-clinical, clinical and commercial milestone payments totaling up to $2.8 billion across all potential targets. Cellectis is also eligible to receive tiered royalties on annual worldwide net sales of any products that are commercialized by the Company that contain or incorporate, or are covered by, certain of Cellectis's intellectual property at rates in the high single-digit percentages.

Unless earlier terminated in accordance with the agreement, the Cellectis Agreement will expire on a product-by-product and country-by-country basis, on the later of (i) the expiration of the last to expire of the licensed patents covering such product; (ii) the loss of regulatory exclusivity afforded such product in such country, and (iii) the tenth anniversary of the date of the first commercial sale of such product in such country; however, in no event will the term extend, with respect to a particular licensed product, past the twentieth anniversary of the first commercial sale for such product.

All costs the Company incurred in connection with this agreement were recognized as research and development expenses. For the six months ended June 30, 2018, $0.4 million of costs have been incurred associated with research services performed by Cellectis. As of June 30, 2018, $0.4 million was recorded in the accrued and other current liabilities.

License and Collaboration Agreement with Servier

As part of the Pfizer Agreement (see Note 5), Pfizer assigned to the Company an Exclusive License and Collaboration Agreement (the Servier Agreement), with Les Laboratoires Servier SAS and Institut de Recherches Internationales Servier SAS (collectively, Servier) to develop, manufacture and commercialize certain allogeneic anti-CD19 CAR T cell product candidates, including UCART19, in the United States with the option to obtain the rights over additional products, including other anti-CD19 product candidates.

Under the Servier Agreement, the Company has an exclusive license to develop, manufacture and commercialize UCART19 in the field of anti-tumor adoptive immunotherapy in the United States, with an exclusive option to obtain the same rights for additional product candidates in the United States and, if Servier does not elect to pursue development or commercialization of those product candidates in certain markets outside of the United States pursuant to its license, outside of the United States as well. The Company is generally not required to make any additional payments to Servier to exercise an option, except for products directed at a certain target, for which the Company is required to pay Servier an option fee in the low tens of millions of dollars range upon exercise. If the Company opts-in to another product candidate, Servier has the right to obtain rights to such product candidate outside the United States and to share development costs for such product candidate.

Under the Servier Agreement, the Company is required to use commercially reasonable efforts to develop and obtain marketing approval in the United States in the field of anti-tumor adoptive immunotherapy for at least one product directed against CD19, and Servier is required to use commercially reasonable efforts to develop and obtain marketing approval in the European Union, and one other country in a group of specified countries outside of the European Union and the United States, in the field of anti-tumor adoptive immunotherapy for at least one allogeneic adaptive T cell product directed against a certain Company-selected target.

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For product candidates that the Company is co-developing with Servier, including UCART19, the Company is responsible for 60% of the development costs and Servier is responsible for the remaining 40% of the development costs under the global research and development plan. Subject to certain restrictions, each party has the right to conduct activities that are specific to its territory outside the global research and development plan at such party's sole expense. In addition, each party is solely responsible for commercialization activities in its territory at such party's sole expense.

The Company is required to make milestone payments to Servier upon successful completion of regulatory and sales milestones on a target-by-target basis. For products directed against CD19, including UCART19, the Servier Agreement provides for aggregate potential payments by the Company to Servier of up to $137.5 million upon successful completion of various regulatory milestones, and aggregate potential payments by the Company to Servier of up to $78.0 million upon successful completion of various sales milestones. The total potential payments that the Company is obligated to make under the Servier Agreement upon successful completion of regulatory and sales milestones are $381.5 million, including the CD19-related milestone payments described above. Similarly, Servier is required to make milestone payments upon successful completion of regulatory and sales milestones for products directed at the Allogene-target covered by the Servier Agreement that achieves such milestones. The total potential payments that Servier is obligated to make to the Company under the Servier Agreement upon successful completion of regulatory and sales milestones are $42 million and €70.5 million ($82.3 million), respectively. The foregoing milestones are subject to certain adjustments if the Company obtains rights for certain products outside of the United States upon Servier's election not to pursue such rights.

Each party is also eligible to receive tiered royalties on annual net sales in countries within the paying party's respective territory of any licensed products that are commercialized by such party that are directed at the targets licensed by such party under the Servier Agreement. The royalty rates are in a range from the low tens to the high teen percentages. Such royalties may be reduced for interchangeable drug entry, expiration of patent rights and amounts paid pursuant to licenses of third party patents. The royalty obligation for each party with respect to a given licensed product in a given country in each party's respective territory (the Servier Royalty Term) begins upon the first commercial sale of such product in such country and ends after a defined number of years.

Unless earlier terminated in accordance with the Servier Agreement, the Servier Agreement will continue, on a licensed product-by-licensed product and country-by-country basis, until the Servier Royalty Term with respect to the sale of such licensed product in such country expires.

For the six months ended June 30, 2018, the Company recorded $3.2 million of the costs incurred under the cost-sharing terms of the Servier Agreement as research and development expense.

Operating Lease

As of June 30, 2018, the Company has not entered into any long-term operating lease agreements.

Indemnification

From time to time, the Company enters into certain types of contracts that contingently requires the Company to indemnify various parties against claims from third parties. These contracts primarily relate to (i) the Company's bylaws, under which the Company must indemnify directors and executive officers, and may indemnify other officers and employees, for liabilities arising out of their relationship, (ii) contracts under which the Company must indemnify directors and certain officers for liabilities arising out of their relationship, (iii) contracts under which the Company may be required to indemnify partners against certain claims, including claims from third

parties asserting, among other things, infringement of their intellectual property rights, and (iv) procurement, consulting, or license agreements under which the Company may be required to indemnify vendors, consultants or licensors for certain claims, including claims that may be brought against them arising from the Company's acts or omissions with respect to the supplied products, technology or services. From time to time, the Company may receive indemnification claims under these contracts in the normal course of business. In addition, under these contracts, the Company may have to modify the accused infringing intellectual property and/or refund amounts received.

In the event that one or more of these matters were to result in a claim against the Company, an adverse outcome, including a judgment or settlement, may cause a material adverse effect on the Company's future business, operating results or financial condition. It is not possible to determine the maximum potential amount under these contracts due to the limited history of prior indemnification claims and the unique facts and circumstances involved in each particular agreement.

The Company also maintains director and officer insurance, which may cover certain liabilities arising from our obligation to indemnify the Company's directors. To date, the Company has not incurred any material costs and has not accrued any liabilities in the financial statements as a result of these provisions.

7. Convertible Preferred Stock and Stockholders' Deficit

Convertible Preferred Stock

As discussed in Note 5, the Company issued 3,187,772 shares of its Series A-1 convertible preferred stock to Pfizer in connection with the Pfizer Agreement entered into in April 2018.

In April 2018, the Company issued 7,557,990 shares of its Series A convertible preferred stock at a price per share of $35.06 for net cash proceeds of $264.4 million and issued 998,225 shares of Series A-1 convertible preferred stock at a price per share of $35.06 for net cash proceeds of $34.9 million. Fifty percent of the aggregate purchase price of $300.0 million was paid in April 2018. The remaining subscriptions receivable of $150.0 million was received in July and August 2018, at the election of the Company's board of directors. The subscriptions receivable are classified as mezzanine equity on the balance sheet as of June 30, 2018 as the shares are issued but unpaid.

Convertible preferred stock consists of the following:

	June 30, 2018			
	Shares Authorized	Shares Issued and Outstanding	Net Carrying Value	Aggregate Liquidation Preference
	(In thousands, except share amounts)			
Series A	7,557,990	7,557,990	$ 264,365	$ 265,000
Series A-1	4,185,997	4,185,997	146,687	146,770
	11,743,987	11,743,987	$ 411,052	$ 411,770

The Company classifies the convertible preferred stock outside of stockholders' deficit because, in the event of certain "liquidation events" that are not solely within the control of the Company (including merger, acquisition, or sale of all or substantially all of the assets), the shares would become redeemable at the option of the holders. The Company did not adjust the carrying values of the convertible preferred stock to the deemed liquidation

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values of such shares since a liquidation event was not probable at any of the reporting dates. Subsequent adjustments to increase or decrease the carrying values to the ultimate liquidation values will be made only if and when it becomes probable that such a liquidation event will occur.

The holders of the Company's convertible preferred stock have various rights, preferences and privileges as follows:

Optional Conversion Rights

Each share of convertible preferred stock shall be convertible, at the option of the holder, into such number of fully paid shares of common stock as is determined by dividing the original issuance price by the conversion price in effect at the time of conversion. As of June 30, 2018, the initial conversion price per share of convertible preferred stock is equivalent to the original issue price. The original issuance price was $35.06 per share for the Series A and A-1 convertible preferred stock. Based on the conversion ratios in effect as of June 30, 2018, the Series A and A-1 convertible preferred stock will convert on a one-for-one basis into common stock. The respective applicable conversion price is subject to adjustment upon any future stock splits or stock combinations, reclassifications or exchanges of similar stock, upon a reorganization, merger or consolidation of the Company, or upon the issuance or sale by the Company of common stock for consideration less than the applicable conversion price.

Mandatory Conversion Rights

Each share of Series A and A-1 convertible preferred stock automatically converts into the number of shares of common stock determined in accordance with the conversion rate upon any of the following: (a) written consent of a majority of each of (i) the holders of a majority of Series A convertible preferred stock, and (ii) the holders of a majority of Series A-1 convertible preferred stock, each voting separately, as a separate class and series or (b) the closing of a public offering with a pre-money valuation of the Company of at least $600.0 million and in which the gross cash proceeds are at least $100.0 million (Qualified Initial Public Offering) or (c) the closing of a public offering, other than Qualified Initial Offering, that is approved by at least 51% of the outstanding shares of Series A and A-1 convertible preferred stock, voting together as a class.

Dividends

The holders of the outstanding shares of convertible preferred stock are entitled to first receive, when and if declared by the board of directors, a dividend at least equal to the dividend payable on common stock as if all convertible preferred stock had been converted to common stock. No dividends had been declared as of June 30, 2018.

Liquidation

In the event of any liquidation, dissolution, or winding up of the Company, either voluntary or involuntary, the holders of convertible preferred stock shall be entitled to receive pro rata, prior and in preference to any distribution to the holders of the common stock, an amount equal to the greater of (i) the original issuance prices of each series (in each case, as adjusted for stock splits, stock dividends or distributions, recapitalizations, and similar events) and all declared but unpaid dividends, if any or (ii) such amount per share as would have been payable had all shares of convertible preferred stock been converted to common stock. If the assets and funds to be distributed among the holders of convertible preferred stock are insufficient to permit the payment to such

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holders, then the entire assets and funds of the Company legally available for distribution will be distributed ratably among the holders of convertible preferred stock in proportion to the preferential amount each such holder is otherwise entitled to receive.

Voting Rights

Each share of convertible preferred stock has a number of votes equal to the number of shares of common stock into which it is convertible. The holders of convertible preferred stock, voting together as a single class, shall be entitled to elect five members of the Company's board of directors. The holders of common stock have the right to elect two members of the Company's board of directors. The holders of common stock and convertible preferred stock, voting together as a single class on an as-converted basis, are entitled to elect three members of the board of directors.

Redemption

The Series A and A-1 convertible preferred stocks are not currently redeemable.

Common Stock

Pursuant to the Amended and Restated Certificate of Incorporation filed on April 5, 2018, as amended, the Company is authorized to issue a total of 101,000,000 shares of common stock, of which 27,714,743 shares were issued and outstanding at June 30, 2018.

In connection with the issuance of the Company's Series A convertible preferred stock in April 2018, the Company's founders agreed to modify their common shares outstanding to include vesting provisions that require continued service to the Company in order to vest in those shares. As such, the 26,249,993 modified shares of common stock became compensatory upon such modification. The total compensation cost resulting from the modification is approximately $59.5 million and is being recognized over the four-year vesting term. For the six-month period ended June 30, 2018, the Company recognized $8.0 million of this amount in general and administrative expense.

Common stockholders are entitled to dividends if and when declared by the Board of Directors subject to the prior rights of the preferred stockholders. As of June 30, 2018, no dividends on common stock had been declared by the Board of Directors.

8. Stock-Based Compensation

In June 2018, the Company adopted the 2018 Equity Incentive Plan (2018 Plan). The 2018 Plan provides for the Company to sell or issue common stock or restricted common stock, or to grant incentive stock options or nonqualified stock options for the purchase of common stock, to employees, members of the Board of Directors and consultants of the Company under terms and provisions established by the Board of Directors. Under the terms of the Plan, options may be granted at an exercise price not less than fair market value. The Company generally grants stock-based awards with service conditions only. Options granted typically vest over a four-year period but may be granted with different vesting terms.

As of June 30, 2018, there were 958,350 shares reserved by the Company under the 2018 Plan for the future issuance of equity awards.

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The following summarizes option activity under the 2018 Plan:

	Number of Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contract Term (In years)	Aggregate Intrinsic Value (In thousands)
Balance, December 31, 2017	—	—		
Options granted	8,808,975	$ 2.27		
Options exercised	(1,464,750)	$ 2.27		
Options forfeited	—	—		
Balance outstanding, June 30, 2018	7,344,225	$ 2.27	9.99	—
Exercisable, June 30, 2018	5,268,375	$ 2.27	9.99	—
Vested and expected to vest, June 30, 2018	7,344,225	$ 2.27	9.99	—

The aggregate intrinsic values of options outstanding, exercisable, vested and expected to vest were calculated as the difference between the exercise price of the options and the estimated fair value of the Company's common stock, as determined by the board of directors, as of June 30, 2018. No intrinsic value of options exercised existed for the six months ended June 30, 2018.

During the six months ended June 30, 2018, the estimated weighted-average grant-date fair value of employee options granted was $1.57 per share. As of June 30, 2018, there was $13.8 million of unrecognized stock-based compensation related to unvested stock options, which is expected to be recognized over a weighted-average period of 3.7 years.

The fair value of employee and director stock option awards was estimated at the date of grant using a Black-Scholes option-pricing model with the following assumptions:

	Six Months Ended June 30, 2018
Fair value of common stock	$2.27
Expected term (years)	5.99 to 6.25 years
Expected volatility	77.00%
Expected risk-free interest rate	2.87%
Expected dividend	0%

The Black-Scholes option-pricing model requires the use of subjective assumptions which determine the fair value of stock-based awards. These assumptions include:

Fair value of common stock—Historically, because there has been no public market for the Company's common stock, the fair value of the Company's common stock underlying share-based awards was estimated on each grant date by the Company's board of directors. In order to determine the fair value of the Company's common stock underlying option grants, the Company's board of directors considered, among other things, valuations of the Company's common stock prepared by an unrelated third-party valuation firm in accordance with the guidance provided by the American Institute of Certified Public Accountants Practice Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*.

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Expected term— The expected term represents the period that stock-based awards are expected to be outstanding. The expected term for option grants is determined using the simplified method. The simplified method deems the term to be the average of the time-to-vesting and the contractual life of the stock-based awards.

Expected volatility—Since the Company is a privately held company and does not have any trading history for its common stock, the expected volatility is estimated based on the average volatility for comparable publicly traded biotechnology companies over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on their similar size, stage in the life cycle or area of specialty. 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.

Risk-free interest rate—The risk-free interest rate is based on the U.S. Treasury zero coupon issues in effect at the time of grant for periods corresponding with the expected term of option.

Expected dividend—The Company has never paid dividends on its common stock and has no plans to pay dividends on its common stock. Therefore, the Company used an expected dividend yield of zero.

For the six months ended June 30, 2018, total stock-based compensation expense related to stock options was $53,000, of which $40,000 was recorded in general and administrative expense and $13,000 in research and development expense. As discussed in Note 7, the Company also recorded in general and administrative expenses $8.0 million in stock-based compensation related to the modification of its founders' common stock.

Early Exercised Options

The Company allows its executive employees and directors to exercise options granted under the 2018 Plan prior to vesting. The shares related to early exercised stock options are subject to the Company's lapsing repurchase right upon termination of employment at the lesser of the original purchase price or fair market value at the time of repurchase. In order to vest, the holders are required to provide continued service to the Company. The proceeds are initially recorded in accrued and other liabilities and other long-term liabilities for the noncurrent portion. The proceeds are reclassified to common stock and paid-in capital as the repurchase right lapses. As of June 30, 2018, there was $0.8 million recorded in accrued and other liabilities and $2.5 million recorded in other long-term liabilities related to shares held by employees and directors that were subject to repurchase. The underlying shares are shown as outstanding in the financial statements since the exercise date.

9. Related Party Transactions

As of June 30, 2018, Pfizer holds 4,185,997 shares of Series A-1 convertible preferred stock and has appointed two members to the Company's board of directors.

In April 2018, the Company entered into a transition services agreement (the Pfizer TSA) for Pfizer to provide the Company professional services related to research and development, project management, and other administrative functions. For the six months ended June 30, 2018, the costs incurred under the Pfizer TSA were $3.7 million, which were recorded as general and administrative expense of $1.8 million and research and development expense of $1.9 million. The Company also purchased certain lab supplies from Pfizer in connection with its research and development activities. For the six months ended June 30, 2018, the total lab supplies purchased from Pfizer was $3.3 million, which is recorded as research and development expense.

As of June 30, 2018, the Company has an amount payable to Pfizer of $6.6 million which is recorded in the accrued and other current liabilities on the accompanying balance sheets.

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Consulting Agreements

In June 2018, the Company entered into a services agreement with a firm affiliated with the Company's President and Chief Executive Officer, the Company's Executive Chairman of the board of directors, and a director of the Company to provide various managerial, administrative, accounting and financial services to the Company. Additionally, in June 2018 the Company entered into a consulting services agreement with a firm affiliated with a beneficial owner of more than 5% of our capital stock. The costs incurred for services provided under these agreements were $0.3 million for the six months ended June 30, 2018 and were included in general and administrative expenses.

10. Income Taxes

For the period from November 30, 2017 to December 31, 2017 and for the six months ended June 30, 2018, the Company recorded no income tax expense. The Company has incurred net operating losses for all the periods presented. The Company has not reflected any benefit of such net operating loss carryforwards in the accompanying financial statements. The Company has established a full valuation allowance against its deferred tax assets due to the uncertainty surrounding the realization of such assets.

The components of the deferred tax assets and liabilities are as follows:

	December 31, 2017	June 30, 2018
	(In thousands)	
Net operating loss carryforwards	$ —	$ 5,999
Depreciation and amortization	—	73
Accrual and allowances	—	23
In-process research and development	—	23,121
Total deferred tax assets	—	29,216
Less: valuation allowance	—	(29,216)
Net deferred tax assets	$ —	$ —

Realization of deferred tax assets is dependent upon future earnings, if any, the timing and amount of which are uncertain. Due to the lack of earnings history, the net deferred tax assets have been fully offset by a valuation allowance. The valuation allowance increased by approximately $29.2 million during the six months ended June 30, 2018.

The Company records a liability related to uncertain tax positions in the financial statements. It is the Company's policy to include penalties and interest expense related to income taxes as a component of interest and other income, net, as necessary. As of June 30, 2018, there were no accrued interest and penalties related to uncertain tax positions.

The Company had $0 and $0.5 million in unrecognized tax benefits as of December 31, 2017 and June 30, 2018, respectively. The reversal of the uncertain tax benefits would not affect the effective tax rate to the extent that the Company continues to maintain a full valuation allowance against its deferred tax assets. Unrecognized tax benefits may change during the next 12 months for items that arise in the ordinary course of business.

In December 2017, the Tax Cuts and Jobs Acts (Tax Act) was signed into law. The Tax Act, among other changes, lowers the Company's federal tax rate from 34% to 21%. Since the Company established a valuation

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allowance to offset its deferred tax assets, there is no impact to the effective tax rate, as any changes to deferred taxes were offset by an equal change in the valuation allowance.

11. Net Loss and Unaudited Pro Forma Net Loss Per Share

The following outstanding potentially dilutive shares have been excluded from the calculation of diluted net loss per share for the periods presented due to their anti-dilutive effect:

	December 31, 2017	June 30, 2018
Convertible preferred stock	—	11,743,987
Stock options to purchase common stock	—	7,344,225
Founder shares of common stock subject to future vesting		22,716,329
Early exercised stock options subject to future vesting	—	1,464,750

Pro Forma Net Loss Per Share

The following table sets forth the computation of unaudited pro forma basic and diluted net loss per share during the six months ended June 30, 2018:

	Six Months Ended June 30, 2018
Net loss per share, basic and diluted	$ (9.42)
Weighted-average number of shares used in computing net loss per share, basic and diluted	14,600,379
Pro forma adjustment to reflect assumed conversion of convertible preferred stock	29,410,895
Weighted-average number of shares used in computing pro forma net loss per share, basic and diluted	44,011,274
Pro forma net loss per share, basic and diluted	$ (3.12)

12. Subsequent Events

Subsequent events have been evaluated through August 10, 2018, which is the date that the financial statements were available to be issued.

Receipt of Subscriptions Receivable

In July and August 2018, the Company received an aggregate of $150.0 million in cash proceeds from its Series A and A-1 convertible preferred stockholders related to subscriptions receivable (see Note 7).

Operating Lease Agreement

In August 2018, the Company entered into an operating lease agreement for new office and laboratory space in South San Francisco, California. The lease term is expected to commence on March 1, 2019 and expires ten years from the commencement date. The initial annual base rent is approximately $4.1 million, and such amount will increase by 3.5% annually on each anniversary of the commencement date. In connection with the lease, the Company will maintain a letter of credit for the benefit of the landlord in the amount of $0.9 million.

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Convertible Notes

In September 2018, the Company entered into a note purchase agreement pursuant to which it sold and issued $120.2 million aggregate principal amount of convertible promissory notes (2018 Notes) and received net cash proceeds of $116.9 million. The 2018 Notes do not accrue interest and will be settled with shares of common stock in connection with the closing of the IPO at a settlement price equal to 85% of the IPO price per share. If the Company is acquired, completes a business combination resulting in a change of control or sells all or substantially all of its assets (each, a "liquidation transaction") prior to the one-year anniversary of the issuance date of the 2018 Notes, the 2018 Notes, unless previously settled into shares of common stock in the IPO, will settle into shares of common stock at a price per share equal to 85% of the estimated fair value of the consideration per share payable to the holders of common stock in connection with such liquidation transaction. If neither the IPO nor a liquidation transaction occurs prior to the one-year anniversary of the issuance date of the 2018 Notes, the 2018 Notes will be converted into shares of newly designated Series B convertible preferred stock of the Company at settlement price per share that will be determined based on a stipulated $900.0 million valuation of the Company and its fully diluted capitalization as of immediately prior to the conversion of the 2018 Notes. The 2018 Notes contain additional redemption features contingent upon the occurrence of certain future events. The Company will elect to account for the 2018 Notes at fair value with any changes in fair value being recognized through the statement of operations until settlement of the 2018 Notes.

18,000,000 Shares

Common Stock

Goldman Sachs & Co. LLC **J.P. Morgan** **Cowen** **Jefferies**

October 10, 2018

Through and including November 4, 2018 (the 25th day after the commencement of this offering), all dealers that buy, sell or trade shares of our common stock, whether or not participating in this offering, may be required to deliver a prospectus. This delivery requirement is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.