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

Form 10-K

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2020

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission File Number: 000-29089

Agenus Inc.

(exact name of registrant as specified in its charter)

Delaware	**06-1562417**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

3 Forbes Road, Lexington, Massachusetts 02421
(Address of principal executive offices, including zip code)

Registrant's telephone number, including area code:

(781) 674-4400

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

Common Stock, $.01 Par Value	**AGEN**	**The Nasdaq Capital Market**
(Title of each class)	**(Trading Symbol)**	**(Name of each exchange on which registered)**

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

None

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

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

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

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

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

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

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

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

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

The aggregate market value of Common Stock held by non-affiliates of the registrant as of June 30, 2020 (the last trading day of the registrant's second fiscal quarter of 2020) was: $670.5 million. There were 204,685,422 shares of the registrant's Common Stock outstanding as of March 15, 2021.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's Definitive Proxy Statement relating to the 2021 Annual Meeting of Stockholders, which the registrant intends to file with the Securities and Exchange Commission pursuant to Regulation 14A within 120 days after the end of the registrant's fiscal year ended December 31, 2020, are incorporated by reference into Part III of this Report.

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Note Regarding Forward-Looking Statements

This Annual Report on Form 10-K and other written and oral statements the Company makes from time to time contain forward-looking statements. You can identify these forward-looking statements by the fact they use words such as “could,” “expect,” “anticipate,” “estimate,” “target,” “may,” “project,” “guidance,” “intend,” “plan,” “believe,” “will,” “potential,” “opportunity,” “future” and other words and terms of similar meaning. Forward-looking statements include discussion of future operating or financial performance. You also can identify forward-looking statements by the fact that they do not relate strictly to historical or current facts. Forward-looking statements involve risks and uncertainties that could delay, divert or change any of them, and could cause actual outcomes to differ materially. These statements relate to, among other things, our business strategy, our research and development, our product development efforts, our ability to commercialize our product candidates, the activities of our licensees, our prospects for initiating partnerships or collaborations, the timing of the introduction of products, the effect of new accounting pronouncements, our future operating results and our potential profitability, availability of additional capital as well as our plans, objectives, expectations, and intentions.

Although we believe we have been prudent in our plans and assumptions, no assurance can be given that any goal or plan set forth in forward-looking statements can be achieved, and readers are cautioned not to place undue reliance on such statements, which speak only as of the date of this report. We undertake no obligation to release publicly any revisions to forward-looking statements as a result of new information, future events or otherwise.

The risks identified in this Annual Report on Form 10-K, including, without limitation, the risks set forth in Part I-Item 1A. “Risk Factors,” could cause actual results to differ materially from forward-looking statements contained in this Annual Report on Form 10-K. We encourage you to read those descriptions carefully. Such statements should be evaluated in light of all the information contained in this document.

PART I

Item 1. *Business*

Our Business

We are a clinical-stage immuno-oncology ("I-O") company advancing an extensive pipeline of immune checkpoint antibodies, adoptive cell therapies and neoantigen cancer vaccines, to fight cancer. Our business is designed to drive success in I-O through speed, innovation and effective combination therapies. We believe that a deep understanding of each patient's cancer and the potential to deliver combination therapies will drive substantial expansion of the patient population benefiting from current I-O therapies. In addition to a diverse pipeline, we have assembled fully integrated end-to-end capabilities including novel target discovery, antibody generation, cell line development and current good manufacturing practice ("cGMP") manufacturing. We believe that these fully integrated capabilities enable us to produce novel candidates on timelines that are shorter than the industry standard. Leveraging our science and capabilities, we have forged important partnerships to advance our innovation.

We believe the next generation of cancer treatment will build on clinically validated antibodies targeting CTLA-4 and PD-1 combined with novel immunomodulatory agents designed to address underlying tumor escape mechanisms. Our most advanced antibody candidates are balstilimab (an anti-PD-1 antibody) and zalifrelimab (an anti-CTLA-4 antibody), which are currently in Phase 2 trials as both a monotherapy (balstilimab) and combination therapy (balstilimab/zalifrelimab) for treatment of patients with second-line cervical cancer. Both trials are designed to support Biologics License Application ("BLA") filings under the U.S. Food and Drug Administration ("FDA") accelerated approval pathway. We announced interim data from these trials in February, March and September 2020, and initiated the rolling submission of a BLA for balstilimab (monotherapy) in September 2020. We expect to complete our BLA filing for balstilimab (monotherapy) in the first half of 2021, and to solidify our strategy for the combination filing after the monotherapy filing is accepted by the FDA. We are also advancing a proprietary next-generation anti-CTLA-4 antibody, AGEN1181, which is designed to improve the magnitude of responses to first-generation anti-CTLA-4 molecules and to expand the population of patients currently benefiting from anti-CTLA-4 therapy. AGEN1181 is currently in a Phase 2 study as a monotherapy and as a combination therapy with balstilimab.

In addition to our lead programs, Agenus scientists have leveraged our internal discovery and translational platforms and powerful algorithms to develop a pipeline of molecules that are intended to address key aspects of antitumor immunity and tumor resistance mechanisms. For tumors not yet visible to the immune system, we are leveraging our immune educating neoantigen vaccine platform, designed to target mutationally based and biochemically based (phosphorylated) neoantigens (AutoSynVax and PhosphoSynVax) to prime the immune system to attack tumors. These vaccines may be applicable to patients where checkpoint modulating ("CPM") antibodies alone are not sufficient to elicit tumor control. In addition, and to further improve patient response rates, Agenus scientists are developing therapies intended to address mechanisms of immune evasion and therapeutic resistance. These approaches include "multi-specific" antibodies designed to modulate myeloid cell biology, condition the tumor microenvironment, and augment the activity of immune cells. Some of these novel agents are advancing to the clinic via the Agenus pipeline or via partnering relationships. Given the diversity of the Agenus pipeline, we are positioned to potentially deliver combination therapies with our goal being to enhance response rates and thereby benefit patients who are unresponsive to current immunotherapies.

Additionally, in 2017, we formed a subsidiary, AgenTus Therapeutics, focused on the development of allogeneic invariant natural killer T ("iNKT") cell therapies to treat cancer and other life threatening illnesses, as well as a pipeline of T cell receptors ("TCR") and chimeric antigen receptors ("CAR") formulated in allogeneic cell formats. In May 2020 and June 2020, the FDA accepted our investigational new drug ("IND") applications for agenT-797, an allogeneic iNKT therapy, for the treatment of patients with hematological malignancies, including multiple myeloma and B cell lymphoma, and COVID-19-related pneumonia, respectively. In November 2020, AgenTus dosed its first COVID-19 patient with agenT-797, and trials for hematological malignancies are expected to commence in the second quarter of 2021.

To succeed in I-O, innovation and speed are paramount. We are a vertically integrated biotechnology company equipped with a suite of technology platforms to advance from novel target identification through manufacturing for clinical trials of antibodies and vaccines.

Our common stock is currently listed on The Nasdaq Capital Market under the symbol "AGEN."

Our Vision

We believe that combination therapies and a deep understanding of each patient's cancer will be key drivers of success in substantially expanding the patient population benefiting from current I-O therapies. In addition, delivering innovation with speed is critical for our future success, as drug development timelines in oncology shorten while product obsolescence rates climb. We believe our fully integrated, end-to-end capabilities from novel target discovery, antibody generation, cell line development, to cGMP manufacturing, together with a comprehensive portfolio consisting of antibody-based therapeutics, cell therapies, adjuvants and cancer vaccines, will uniquely position us to produce novel therapies on accelerated timelines. We believe that a balanced pipeline of product candidates should focus on both validated targets as well as novel targets designed to address tumor escape mechanisms. In this

context, CTLA-4 and PD-1 antagonists are recognized as the first clinically validated immunotherapy combination. These therapeutic targets, in combination with innovative immunomodulatory antibodies or immune education vaccines, are reasonably anticipated to be focal points of the next generation of I-O combination therapies. Therefore, we plan to develop, register and launch proprietary antibodies targeting PD-1 and CTLA-4 aggressively through the clinic and expand with novel combination therapies designed to improve clinical response and the durability of response of existing therapies.

Our Strategy

Our strategy is to bring innovative combination therapies for cancer patients to substantially expand the patient population benefiting from current I-O therapies. Our diverse pipeline of antibody-based therapeutics, cell therapies, adjuvants and cancer vaccines enable us to pursue therapeutically relevant approaches focused on safe and effective therapeutic agent combinations. In line with this approach, we utilize a tiered risk profile with targeting of compressed timelines for regulatory filings; as exemplified by the initiation of a rolling BLA submission for balstilimab monotherapy in 2020 – to support accelerated approval of balstilimab in the treatment of second-line cervical cancer. We believe that we are positioned to take advantage of accelerated pathways for product approvals which require relatively small numbers of patients and utilize surrogate or short-term endpoints to support trial outcomes. In addition, we plan to pursue additional select indications to further expedite market entry.

Our strategies for our more novel, earlier stage development programs include (i) pursuit of effective I-O antibodies, allogeneic cell-therapy combinations with CTLA-4 and/or PD-1 targeted antibodies as the backbone and (ii) advancement of our differentiated clinical stage antibody programs such as our next generation anti-CTLA-4 (AGEN1181), our bispecific programs (AGEN1223 and others), differentiated CD137 (AGEN2373) and TIGIT antibodies.

Part of our strategy is to develop and commercialize some select product candidates by continuing our existing arrangements with collaborators and licensees and by entering into new collaborations.

Our Assets

Our I-O assets include antibody-based therapeutics, monospecific and bispecific antibodies, cell therapy, neoantigen cancer vaccines (individualized and off-the shelf) platforms and adjuvants. Our proprietary and differentiated anti-PD-1 antibody and our first-generation and next generation anti-CTLA-4 antagonists are in clinical development; we believe we have the most advanced clinical stage proprietary anti-CTLA-4 (zalifrelimab) and anti-PD-1 antibody clinical combinations under evaluation.

To complement our most advanced balstilimab and zalifrelimab programs, we and our partners are advancing additional clinical-stage assets as follows:

- AGENT 797 – iNKT cells manufactured from human donors in a Phase 1 clinical trial for the treatment of COVID-19-related pneumonia; a Phase 1 clinical trial expected to initiate in the second quarter of 2021 for the treatment of Multiple Myeloma / B Cell Malignancies; and clinical trials for combination therapies to treat solid tumors are planned for mid-2021, all through our AgenTus subsidiary.
- AGEN1181 – a next-generation anti-CTLA-4 monospecific antibody currently in a Phase 1/2 clinical trial being advanced by Agenus as a monotherapy and in combination with balstilimab;
- AGEN2373 – an anti-CD137 monospecific antibody currently in a Phase 1 clinical trial being advanced by Agenus, and which Gilead Sciences, Inc. (“Gilead”) has an option to license exclusively;
- AGEN1223 – a novel bispecific antibody designed to deplete regulatory T cells currently in a Phase 1 clinical trial being advanced by Agenus, and which Gilead has an option to license exclusively;
- AGEN1423 – a tumor microenvironment conditioning anti-CD73/TGFβ TRAP bifunctional antibody that recently completed a Phase 1 clinical trial sponsored by Gilead;
- MK-4830 – a monospecific antibody targeting ILT4 exclusively licensed to Merck Sharpe & Dohme (“Merck”) and being advanced by Merck in a Phase 2 clinical trial.
- INCAGN1876 – an anti-GITR monospecific antibody exclusively licensed to Incyte Corporation (“Incyte”) and being advanced by Incyte in a Phase 2 clinical trial;
- INCAGN1949 – an anti-OX40 monospecific antibody exclusively licensed to Incyte and being advanced by Incyte in a Phase 1/2 clinical trial;
- INCAGN2390 – an anti-TIM-3 monospecific antibody exclusively licensed to Incyte and being advanced by Incyte in a Phase 1 clinical trial; and
- INCAGN2385 – an anti-LAG-3 monospecific antibody exclusively licensed to Incyte and being advanced by Incyte in a Phase 1 clinical trial.

We also have a robust pipeline of pre-clinical assets, which include AGEN1777, an anti-TIGIT bispecific antibody, and AGEN1327, an anti-TIGIT monospecific antibody. We expect to initiate clinical trials with AGEN1777 in 2021.

Further, our neoantigen vaccine platforms include: (i) individualized AutoSynVax™ (ASV™), which targets the unique antigens expressed by a patient’s own tumor, and (ii) off-the-shelf (or pre-manufactured) PhosphoSynVax™ (PSV™), which target

antigens expressed across patients and tumors, thereby enabling potential treatment of broader categories of patients. Our vaccines are powered by our proprietary adjuvant, QS-21 Stimulon™; and have demonstrated safety in Phase 1 clinical trials. We believe our vaccines will be an important part of a durable memory responses in tumor control and treatment,and are well-positioned to be optimized for use in combination with antibodies and cell therapeutic platforms.

Our proprietary QS-21 Stimulon is considered to be one of the most potent adjuvants known. By way of example, QS-21 Stimulon is a key component in several GlaxoSmithKline plc ("GSK") vaccines, including GSK's Shingrix, which reported sales in excess of $2.0 billion in each of 2019 and 2020, its first two years on the market. Sales in 2019 triggered a $15.1 million milestone payment to us from Healthcare Royalty Partners III, L.P. and certain of its affiliates (collectively, "HCR"), which we received in 2020. QS-21 is used in numerous other clinical-stage vaccines under development, including our own cancer vaccines. In addition, in 2019, the Bill & Melinda Gates Foundation awarded us a grant to develop an alternative, plant cell culture-based manufacturing process to ensure continuous future supplies of QS-21 Stimulon, which we are pursuing in partnership with Phyton Biotech.

Our Antibody Discovery Platforms and CPM Programs

Checkpoint antibodies regulate immune response against tumor expressing antigens and are achieving positive outcomes in a number of cancers that were considered untreatable only a few years ago. Two classes of checkpoint targets include:

1. inhibitory checkpoints that help suppress an immune response in order to prevent excessive immune reaction resulting in undesired inflammation and/or auto-immunity; and

2. stimulatory checkpoints that can enhance or amplify an antigen-specific immune response.

We possess end-to-end capabilities in-house – from discovery through to manufacturing – that have enabled us to advance our discoveries at lower costs with efficiency and speed. These product development advantages allow us to manage a large portfolio of discoveries; and have given rise to clinical stage antibody candidates, and a portfolio of more than a dozen pre-clinical programs advancing, and partnerships (i.e., with Gilead, Incyte, Merck, GSK and Betta Pharmaceuticals Co., Ltd. ("Betta")).

Our anti-CTLA-4 and anti-PD-1 programs (zalifrelimab and balstilimab, respectively) are in late phase clinical trials designed to support BLA filings under the FDA accelerated approval pathway. We initiated the rolling submission of our BLA for balstilimab monotherapy in September 2020 to treat second-line cervical cancer patients. We expect to complete this BLA filing in the first half of 2021, and to solidify our strategy for the combination filing in the same indication after the monotherapy filing is accepted by the FDA. We presented data from our pre-planned interim analysis in February, March, and September 2020, as well as at major oncology conferences, including the Society for Immunotherapy of Cancer ("SITC") in 2019, American Society of Clinical Oncology conference in June 2018 and the European Society for Medical Oncology congress in 2018. In addition, we presented pre-clinical data on our Fc engineered anti-TIGIT antibody at the SITC conference in 2019, our Gilead-partnered anti-CD137 (AGEN2373), and our Incyte-partnered programs (anti-TIM-3 and anti-LAG-3) antibodies at the American Association for Cancer Research conference in April 2018.

To date, we have treated over 400 patients with zalifrelimab (anti-CTLA-4) and/or balstilimab (anti-PD-1) and have observed a safety profile consistent with this class of drugs.

Over the past six months, we have reported the following clinical data:

- Results from the largest clinical trials of I-O agents in relapsed cervical cancer revealed in n=160 patient balstilimab (anti-PD-1 antibody) monotherapy trial achieved response rates of 14% in all treated patients and 19% in PD-L1 positive patients, and in a trial of n=155 patient balstilimab (anti-PD-1 antibody) + zalifrelimab (anti-CTLA-4 antibody) combination trial achieved response rates of 22% in all patients and 27% in PD-L1 positive patients;
- Six clinical responses in a Phase 1/2 trial of AGEN1181, as monotherapy and in combination with Agenus' anti-PD-1 balstilimab. These results demonstrate potential for AGEN1181 as an efficacious next-generation CTLA-4 antibody (with activity in difficult-to-treat tumors) without neuroendocrine or significant liver toxicities commonly observed with the currently approved CTLA-4 antibody ipilimumab. Responses (2 complete responses; 4 partial responses) were observed in MSS endometrial (n=2), PD-1 refractory ovarian (n=2), and colorectal (n=2) tumor types. We also presented on the first-ever report of intratumoral Treg depletion with a CTLA-4 antibody in clinical trials at SITC 2020;
- Positive preliminary results from a Phase 1 trial of iNKT cell therapy in patients with moderate to severe symptoms of COVID-19 reporting of the 4 patients dosed at the time of report, 3 patients (75%) were extubated and released after treatment; with 2 patients (50%) being extubated within 24 hours of dosing; and
- New clinical responses and novel biomarker data presented at SITC 2020 that included clinical and mechanism of action data for AGEN2373 (anti-CD137 antibody) in a Phase 1 clinical trial that revealed clinical benefit without liver toxicity, as well as for AGEN1777 (anti-TIGIT bispecific), which is Fc enhanced for optimized immune performance and broader benefit. We also reported on our VISION benefit prediction model that identified an immunologic signature that could predict patients who would respond to balstilimab and balstilimab/zalifrelimab with an 87% probability of success in such model.

With respect to our novel discovery pipeline, our most advanced asset is our next generation anti-CTLA-4 antibody (AGEN1181), an IgG1 anti-CTLA-4 antagonist. Based on preclinical and early clinical data, we believe that this molecule has potential advantages relative to competing anti-CTLA-4 molecules, including:

(1) potential to induce enhanced T cell priming via the engineered Fc region, as T cell priming is a crucial step in generating potent immune responses against cancer;

(2) differentiated ability to deplete intratumoral regulatory T cells, which otherwise represent a significant barrier to successful anti-cancer immune responses;

(3) better combination potential with other antitumor or immunomodulatory antibodies, vaccines, and targeted therapies; and

(4) potential therapeutic benefit to a wider patient population, including the estimated 40% of patients who are unlikely to fully benefit from the first generation CTLA-4 therapies due to a genetic predisposition.

AGEN1181 is currently in a Phase 1/2 dose escalation study as a monotherapy and in combination with AGEN2034, and we are planning discussions with the FDA to define an accelerated path to potential registration.

Partnered CPM Programs

In June 2020, we entered into a license and collaboration agreement (the "Betta License Agreement") with Betta, pursuant to which we granted Betta an exclusive license to develop, manufacture and commercialize balstilimab and zalifrelimab in the People's Republic of China, Hong Kong, Macau and Taiwan (collectively, "Greater China"). Under the terms of the Betta License Agreement, we received $15.0 million upfront and are eligible to receive up to $100.0 million in milestone payments plus royalties on any future sales in Greater China. In connection with this transaction, we also entered into a stock purchase agreement with Betta and a wholly-owned subsidiary of Betta ("Betta HK"), pursuant to which we sold to Betta HK 4,962,779 shares of Agenus common stock for an aggregate purchase price of approximately $20.0 million in July 2020.

In December 2018, we entered into a series of agreements with Gilead to collaborate on the development and commercialization of up to five novel I-O therapies. Pursuant to the collaboration agreements, we received an upfront cash payment from Gilead of $120.0 million following the closing in January 2019, and Gilead also purchased 11,111,111 shares of Agenus common stock for an additional $30.0 million. At closing, Gilead received worldwide exclusive rights to our bispecific antibody, AGEN1423, as well as a right of first negotiation for two undisclosed programs. Gilead also received the exclusive option to license exclusively AGEN1223, a bispecific antibody, and AGEN2373, a monospecific antibody. For either, but not both, of the option programs, we have the right to opt-in to share Gilead's development and commercialization costs in the United States in exchange for a profit (loss) share on a 50:50 basis and revised milestone payments. In November 2020, Gilead elected to return AGEN1423 to us and to voluntarily terminate the license agreement effective as of February 4, 2021. The option agreements remain in place, and we are responsible for developing each program up to the option decision points, at which time Gilead may acquire exclusive rights to the programs on option exercise. Pursuant to the terms of the option agreements, we remain eligible to receive up to $100.0 million in aggregate option exercise fees and, if exercised, up to approximately $1.0 billion in development and commercial milestone payments as well as royalties on net sales.

In January 2015, we entered into a collaboration with Incyte Corporation ("Incyte") to discover, develop and commercialize novel immuno-therapeutics using our antibody platforms. The collaboration was initially focused on four CPM programs targeting GITR, OX40, TIM-3 and LAG-3, and in November 2015, we expanded the alliance by adding three novel undisclosed CPM targets. Pursuant to the terms of the original agreement, Incyte paid us $25.0 million in upfront cash. Targets under the collaboration were designated as either profit-share programs, where the parties shared all costs and profits equally, or royalty-bearing programs, where Incyte funded all costs, and we were eligible to receive milestones and royalties. Under the original collaboration agreement, programs targeting GITR, OX40 and two of the undisclosed targets were designated as profit-share programs, while the other targets were royalty-bearing programs. For each profit-share product, we were eligible to receive up to $20.0 million in future contingent development milestones. For each royalty-bearing product, we were eligible to receive (i) up to $155.0 million in future contingent development, regulatory, and commercialization milestones and (ii) tiered royalties on global net sales at rates generally ranging from 6%-12%. Concurrent with the execution of the original collaboration agreement, we and Incyte also entered into a stock purchase agreement pursuant to which Incyte purchased approximately 7.76 million shares of our common stock for an aggregate purchase price of $35.0 million. In February 2017, we and Incyte amended the terms of the original collaboration agreement to, among other things, convert the GITR and OX40 programs from profit-share to royalty-bearing programs with royalties on global net sales at a flat 15% rate for each. In addition, the profit-share programs relating to two undisclosed targets were removed from the collaboration, with one reverting to Incyte and one to Agenus (the latter being our Fc enhanced anti-TIGIT program), each with royalties on global net sales at a flat 15% rate. The remaining three royalty-bearing programs in the collaboration targeting TIM-3, LAG-3 and one undisclosed target remain unchanged, and there are no more profit-share programs under the collaboration. Pursuant to the amended agreement, we received accelerated milestone payments of $20.0 million from Incyte related to the clinical development of INCAGN1876 (anti-GITR agonist) and INCAGN1949 (anti-OX40 agonist). Concurrent with the execution of the amendment agreement, we and Incyte entered into a separate stock purchase agreement whereby Incyte purchased an additional 10 million shares

of our common stock for an aggregate purchase price of $60.0 million. INCAGN1876 is currently in a Phase 2 trial exploring its safety, tolerability, and efficacy in combination with immune therapies, ipilimumab and nivolumab, in advanced or metastatic malignancies such as advanced or metastatic endometrial cancer, gastric cancer (including stomach, esophageal, and gastroesophageal junction), and squamous cell carcinoma of the head and neck. INCAGN1949 is currently in a Phase 1/2 trial exploring its safety, tolerability, and efficacy in combination with immune therapies, ipilimumab and nivolumab, in advanced or metastatic malignancies such as advanced or metastatic urothelial carcinoma or RCC. In 2018, Incyte initiated clinical trials for their INCAGN2385 (LAG-3) and INCAGN2390 (TIM-3) programs, which remain in Phase 1 development.

In April 2014, we entered into a collaboration and license agreement with Merck to discover and optimize fully-human antibodies against two undisclosed CPM targets. In 2016, Merck selected a lead product candidate against ILT4, MK-4830, to advance into preclinical studies, and subsequently initiated a Phase 1 clinical trial in August 2018. In November 2020, Merck initiated a Phase 2 clinical trial with MK-4830, triggering a $10.0 million milestone payment to us. Under the terms of the agreement, Merck is responsible for all future product development expenses for MK-4830, and Agenus is eligible to receive potential milestone payments plus royalties on any future sales.

On September 20, 2018, we, through our wholly-owned subsidiary, Agenus Royalty Fund, LLC, entered into a Royalty Purchase Agreement (the "XOMA Royalty Purchase Agreement") with XOMA (US) LLC ("XOMA US"). Pursuant to the terms of the XOMA Royalty Purchase Agreement, XOMA US paid us $15.0 million at closing in exchange for the right to receive 33% of the future royalties and 10% of the future milestones that we are entitled to receive from Incyte and Merck, net of certain of our obligations to a third party and excluding the milestone we received from Incyte in the fourth quarter of 2018. After taking into account our obligations under the XOMA Royalty Purchase Agreement, as of December 31, 2020, we remain eligible to receive up to $450.0 million and $76.5 million in potential development, regulatory and commercial milestones from Incyte and Merck, respectively.

We also have a collaboration agreement with Recepta Biopharma SA for the development of our antibodies targeting CTLA-4 and PD-1, which gives Recepta certain rights to South American countries. We expect to continue exploring additional future collaborations.

Vaccine Platforms

Our current neoantigen vaccine platforms for the treatment of cancer, and potentially other indications, include our heat shock protein ("HSP") based Prophage vaccine candidates, and our fully synthetic, neoantigen vaccine candidates, ASV and PSV.

We, and others, have demonstrated that immunization with HSP complexes generate both CD4 and CD8 positive T-cell immune responses. These activated T-cells target the cancer cells of the tumor, from which the HSP complexes were derived, for destruction. Thus, HSP complexes isolated from cancer cells may be particularly helpful in mediating successful immunization. Since HSPs are expressed in all tumor cells, the approach of immunizing with the HSP complexes isolated from a particular tumor may be broadly applicable to a variety of cancer types. We believe that we pioneered the use of gp96, an HSP, purified from a patient's own tumor tissue, to make I-O vaccine candidates.

Prophage Vaccine Candidates

Prophage (HSPPC-96), is an autologous cancer vaccine therapy derived from cancer tissues that are surgically removed from an individual patient designed to contain a broad sampling of potentially antigenic mutant proteins to educate the patient's immune system to seek out and destroy cancer. Prophage in combination with pembrolizumab (Keytruda®) is advancing in a Phase 2 clinical trial collaboration with the National Cancer Institute ("NCI"). The trial is being conducted by the Brain Tumor Trials Collaborative, led by Dr. Mark Gilbert, Chief of the Neuro-Oncology Branch at the NCI Center for Cancer Research with product provided by Agenus and Merck. The trial is ongoing.

Neoantigen Vaccine Platforms

Our neoantigen off-the-shelf vaccine platforms include: (i) individualized ASV®™, which targets the unique antigens expressed by a patient's own tumor, and (ii) off-the-shelf (or pre-manufactured) PSV™, which targets antigens expressed across patients and tumors, potentially enabling us to treat broader categories of patients.

Our neoantigen vaccines are designed with unique features, intending to confer important advantages: (1) proprietary methods to develop an effective and relevant "Blueprint" of immunogenic neoantigens for each patient; (2) HSPs to efficiently deliver neoantigens to the right immune cells to activate an anti-cancer immune response. Our proprietary linker technology is designed to enable efficient neoantigen loading for a robust cancer specific immune response with significantly less peptide; and (3) QS-21 Stimulon® adjuvant, a potent immune stimulator now in GSK's commercial shingles vaccine, Shingrix. Our vaccines are powered by our proprietary adjuvant, QS-21 Stimulon and have demonstrated safety in Phase 1 clinical trials with data reported at the Next Gen Immuno-oncology congress.

QS-21 Stimulon Adjuvant

QS-21 Stimulon is an adjuvant, which is a substance added to a vaccine or other immunotherapy that is intended to enhance an immune response to the target antigens. QS-21 Stimulon is a natural product, a triterpene glycoside, or saponin, purified from the bark of the Chilean soapbark tree, Quillaja saponaria. QS-21 Stimulon has the ability to stimulate an antibody-mediated immune response and has also been shown to activate cellular immunity. It has become a key component in the development of investigational preventive vaccine formulations across a wide variety of diseases. These studies have been carried out by academic institutions and pharmaceutical companies in the United States and internationally. A number of these studies have shown QS-21 Stimulon to be significantly more effective in stimulating immune responses than aluminum hydroxide or aluminum phosphate, the adjuvants most commonly used in approved vaccines in the United States today. In January 2019, we announced that the Bill & Melinda Gates Foundation awarded us a grant to develop an alternative, plant cell culture-based manufacturing process to ensure the continuous future supply of QS-21 Stimulon adjuvant, which we are pursuing in partnership with Phyton Biotech.

Partnered QS-21 Stimulon Programs

In 2006, we entered into a license agreement and a supply agreement with GSK for the use of QS-21 Stimulon (the "GSK License Agreement" and the "GSK Supply Agreement," respectively). In 2009, we entered into an Amended and Restated Manufacturing Technology Transfer and Supply Agreement (the "Amended GSK Supply Agreement") under which GSK has the right to manufacture all of its requirements of commercial grade QS-21 Stimulon. GSK is obligated to supply us, or our affiliates, licensees, or customers, certain quantities of commercial grade QS-21 Stimulon for a stated period of time. In March 2012, we entered into a First Right to Negotiate and Amendment Agreement amending the GSK License Agreement and the Amended GSK Supply Agreement to clarify and include additional rights for the use of QS-21 Stimulon (the "GSK First Right to Negotiate Agreement"). In addition, we granted GSK the first right to negotiate for the purchase of Agenus or certain of our assets, which expired in March 2017. As consideration for entering into the GSK First Right to Negotiate Agreement, GSK paid us an upfront cash payment of $9.0 million, $2.5 million of which was creditable toward future royalty payments. We refer to the GSK License Agreement, the Amended GSK Supply Agreement and the GSK First Right to Negotiate Agreement collectively as the GSK Agreements. In 2017, we received a final milestone payment of $1.0 million from GSK and are no longer entitled to any additional milestone payments under the GSK Agreements. Under the terms of the Agreement, we are generally entitled to receive a 2% royalty on net sales of prophylactic vaccines for a period of 10 years after the first commercial sale of a resulting GSK product, which was triggered with GSK's first commercial sale of Shingrix in 2017. Notably, we have already monetized and sold this entire royalty stream as discussed in more detail below. The GSK License and Amended GSK Supply Agreements may be terminated by either party upon a material breach if the breach is not cured within the time specified in the respective agreement. The termination or expiration of the GSK License Agreement does not relieve either party from any obligation which accrued prior to the termination or expiration. Among other provisions, the license rights granted to GSK survive expiration of the GSK License Agreement. The license rights and payment obligations of GSK under the Amended GSK Supply Agreement survive termination or expiration, except that GSK's license rights and future royalty obligations do not survive if we terminate due to GSK's material breach unless we elect otherwise. We do not incur clinical development costs for products partnered with GSK.

In September 2015, we monetized a portion of the royalties associated with the GSK License Agreement to an investor group led by Oberland Capital Management for up to $115.0 million in the form of a non-dilutive royalty transaction. Under the terms of a note purchase agreement with the investor group (the "Note Purchase Agreement"), we received $100.0 million at closing for which the investors had the right to receive 100% of our worldwide royalties under the GSK License Agreement on sales of GSK's Shingrix and malaria (RTS,S) prophylactic vaccine products that contain our QS-21 Stimulon adjuvant to pay down principle and interest. In November 2017, and pursuant to the Note Purchase Agreement, we received an additional $15.0 million in cash from the investors based on the approval of Shingrix by the FDA. Pursuant to the terms of this transaction, we retained the right to receive all royalties from GSK after all principal, interest and other obligations were satisfied under the Note Purchase Agreement. The Note Purchase Agreement also allowed us to buy back the loan and extinguish the notes early under pre-specified terms, which we did in January 2018.

In January 2018, we sold 100% of all royalties we were entitled to receive from GSK to HCR and used the proceeds to extinguish the debt under the Note Purchase Agreement. HCR paid approximately $190.0 million at closing for the royalty rights, of which approximately $161.9 was used to extinguish the prior notes, yielding us approximately $28.0 million in net proceeds. We were also entitled to receive up to $40.35 million in milestone payments from HCR based on sales of GSK's vaccines as follows: (i) $15.1 million upon reaching $2.0 billion last-twelve-months net sales any time prior to 2024 (the "First HCR Milestone") and (ii) $25.25 million upon reaching $2.75 billion last-twelve-months net sales any time prior to 2026. GSK's net sales of Shingrix for the twelve months ended December 31, 2019 exceeded $2.0 billion. As a result, we received the First HCR Milestone of $15.1 million in 2020 after GSK's net sales of Shingrix in 2019 exceeded $2.0 billion.

Manufacturing

Manufacturing CPM Antibodies

In December 2015, we acquired an antibody manufacturing pilot plant in Berkeley, CA from XOMA Corporation ("XOMA"), which we refer to as "Agenus West." A team of former XOMA employees with valuable chemistry, manufacturing and controls

experience joined us and continue to operate the facility. Since the acquisition of Agenus West, we have made significant improvements in the plant, and added additional headcount increasing both scale and capacity. Agenus West is currently producing antibody drug substance for certain of our proprietary antibody programs (monospecific and bispecific). In some cases, we have been able to deliver clinical grade material from research cell banks in approximately six to nine months, which is significantly faster than the industry average of 12-18 months. Agenus West utilizes cutting-edge technology platforms, enabling us to be self-reliant and giving us the advantage of drug substance manufacturing speed, cost efficiency, operational flexibility and manufacturing technology transfer to commercial scale partners—all with desired product quality, and with the goal of benefiting patients. In November 2020, we entered into a new long-term lease in Emeryville, CA for cGMP manufacturing space, which we intend to use for certain of our own commercial manufacturing requirements in the future.

The quality control organization for all of our product candidates in Berkeley and Lexington performs a series of release assays designed to ensure that our antibody drug substance and vaccine product meets all applicable specifications. Our quality assurance staff also reviews manufacturing and quality control records prior to batch release in an effort to assure conformance with cGMP as mandated by the FDA and foreign regulatory agencies. Our manufacturing staff is trained and routinely evaluated for conformance to rigorous manufacturing procedures and quality standards. This oversight is intended to ensure compliance with FDA and foreign regulations and to provide consistent drug substance and vaccine output. Our quality control and quality assurance staff are similarly trained and evaluated as part of our effort to ensure consistency in the testing and release of the product, as well as consistency in materials, equipment and facilities.

Manufacturing Cancer Vaccines

We manufacture our cancer vaccine candidates in our Lexington, MA facility.

We have established, within a single facility, well-defined, cost efficient vaccine manufacturing under cGMP conditions, including bioanalytical, quality control and quality assurance, logistics, distribution and supply chain management. After manufacturing, Prophage and ASV vaccine candidates are tested and released by our analytical and quality systems staff.

QS-21 Stimulon

Except in the case of GSK, we have retained worldwide manufacturing rights for QS-21 Stimulon, and we have the right to subcontract manufacturing for QS-21 Stimulon. In addition, under the terms of our agreement with GSK, upon request by us, GSK is committed to supply certain quantities of commercial grade QS-21 Stimulon to us and our licensees for a fixed period.

Intellectual Property Portfolio

We seek to protect our technologies through a combination of patents, trade secrets and know-how, and we currently own, co-own or have exclusive rights to approximately 30 issued United States patents and approximately 30 issued foreign patents. We also own, co-own or have exclusive rights to approximately 40 pending United States patent applications and approximately 370 pending foreign patent applications. We may not have rights in all territories where we may pursue regulatory approval for our product candidates.

Through various acquisitions, we own, co-own, or have exclusive rights to a number of patents and patent applications directed to various methods and compositions, including methods for identifying therapeutic antibodies and product candidates arising out of such entities' technology platforms. In particular, we own patents and patent applications relating to our Retrocyte Display technology platform, a high throughput antibody expression platform for the identification of fully-human and humanized monoclonal antibodies. This patent family is projected to expire between 2029 and 2031. We own, co-own, or have exclusive rights to patents and patent applications directed to various methods and compositions, including a patent directed to methods for identifying phosphorylated proteins using mass spectrometry. This patent is projected to expire in 2023. In addition, as we advance our research and development efforts with our institutional and corporate collaborators, we are seeking patent protection for certain newly identified therapeutic antibodies and product candidates. We can provide no assurance that any of our patents, including the patents that we acquired or in-licensed, will have commercial value, or that any of our existing or future patent applications, including the patent applications that were acquired or in-licensed, will result in the issuance of valid and enforceable patents.

The patent rights for each of our clinical candidates, together with the year in which the basic product patent expires (not including any regulatory exclusivities such as the six-month pediatric extension and/or the granted patent term extension in the U.S. and Japan and Supplementary Patent Certificate in Europe), are those for the programs set forth in the table below. Unless otherwise indicated, the years set forth in the table below pertain to the basic product patent expiration for the respective products. Patent term extensions, supplementary protection certificates and pediatric exclusivity periods are not reflected in the expiration dates listed in the table below. In some instances, we may obtain later-expiring patents relating to our products directed to particular forms or compositions, to methods of manufacturing, or to use of the drug in the treatment of particular diseases or conditions. However, in some cases, such patents may not protect our drug from generic or, as applicable, biosimilar competition after the expiration of the basic patent.

Projected Patent Expiration Year on a Candidate by Candidate Basis

Candidate	U.S. Basic Product Patent Expiration Year (Projected)	E.U. Basic Product Patent Expiration Year (Projected)
Balstilimab(1)	2037	2036
Zalifrelimab(2)	2037	2036
AGEN1181(3)	2037	2037
AGEN1223(4)	2036	2036
AGEN1423(5)	2039	2039
INCAGN1876(6)	2035	2035
INCAGN1949(7)	2037	2036
INCAGN2390(8)	2037	2037
INCAGN2385(9)	2037	2037
MK-4830(10)	2038	2038
AGEN2373	2038	2038

(1) Patents co-owned by Agenus and licensed from Ludwig Institute for Cancer Research.
(2) Patents co-owned by Agenus and licensed from Ludwig Institute for Cancer Research.
(3) Patents co-owned by Agenus and licensed from Ludwig Institute for Cancer Research.
(4) Patents co-owned by Agenus and licensed from Ludwig Institute for Cancer Research.
(5) Patents owned by Agenus.
(6) Patents co-owned by Agenus, licensed from Ludwig Institute for Cancer Research, and licensed to Incyte.
(7) Patents co-owned by Agenus, licensed from Ludwig Institute for Cancer Research, and licensed to Incyte.
(8) Patents co-owned by Agenus and licensed to Incyte.
(9) Patents co-owned by Agenus and licensed to Incyte.
(10) Co-owned by Agenus and Merck.

Various patents and patent applications have been exclusively licensed to us by the following entities:

University of Virginia

In connection with our acquisition of PhosImmune in December 2015, we obtained exclusive rights to a portfolio of patent applications and one issued patent relating to PTTs under a patent license agreement with the University of Virginia (“UVA”). The UVA license gives us exclusive rights to develop and commercialize the PTT technology. Under the license agreement, we will pay low to mid-single digit running royalties on net sales of PTT products, and a modest flat percentage of sublicensing income. In addition, we may be obligated to make milestone payments of up to $2.7 million for each indication of a licensed PTT product to complete clinical trials and achieve certain sales thresholds. The term of the UVA license agreement ends when the last of the licensed patents expires or becomes no longer valid. As of March 2021, the last granted patent that is licensed to us by UVA will expire in late 2033, and there are currently pending patent applications that, if granted, will not expire until mid-2037. The UVA license agreement may be terminated as follows: (i) by UVA in connection with our bankruptcy or cessation of business relating to the licensed technology, (ii) by UVA if we commit a material, uncured breach or (iii) by us for our convenience on 180 days written notice.

Ludwig Institute for Cancer Research

On December 5, 2014, our wholly-owned subsidiary, Agenus Switzerland Inc. (formerly known as 4-Antibody AG) (“4-AB”), entered into a license agreement with the Ludwig Institute for Cancer Research Ltd. (“Ludwig”), which replaced and superseded a prior agreement entered into between the parties in May 2011. Pursuant to the terms of the license agreement, Ludwig granted 4-AB an exclusive, worldwide license under certain intellectual property rights of Ludwig and Memorial Sloan Kettering Cancer Center arising from the prior agreement to further develop and commercialize GITR, OX40 and TIM-3 antibodies. On January 25, 2016, we and 4-AB entered into a second license agreement with Ludwig, on substantially similar terms, to develop CTLA-4 and PD-1 antibodies. Pursuant to the December 2014 license agreement, 4-AB made an upfront payment of $1.0 million to Ludwig. The December 2014 license agreement also obligates 4-AB to make potential milestone payments of up to $20.0 million for events prior to regulatory approval of licensed GITR, OX40 and TIM-3 products, and potential milestone payments in excess of $80.0 million if such licensed products are approved in multiple jurisdictions, in more than one indication, and certain sales milestones are achieved. Under the January 2016 license agreement, we are obligated to make potential milestone payments of up to $12.0 million for events prior to regulatory approval of CTLA-4 and PD-1 licensed products, and potential milestone payments of up to $32.0 million if certain sales

milestones are achieved. Under each of these license agreements, we and/or 4-AB will also be obligated to pay low to mid-single digit royalties on all net sales of licensed products during the royalty period, and to pay Ludwig a percentage of any sublicensing income, ranging from a low to mid-double digit percentage depending on various factors. The license agreements may each be terminated as follows: (i) by either party if the other party commits a material, uncured breach; (ii) by either party if the other party initiates bankruptcy, liquidation or similar proceedings; or (iii) by 4-AB or us (as applicable) for convenience upon 90 days' prior written notice. The license agreements also contain customary representations and warranties, mutual indemnification, confidentiality and arbitration provisions.

Regulatory Compliance

Governmental authorities in the United States and other countries extensively regulate the pre-clinical and clinical testing, manufacturing, labeling, storage, record keeping, advertising, promotion, export, marketing and distribution, among other things, of our investigational product candidates. In the United States, the FDA under the Federal Food, Drug, and Cosmetic Act, the Public Health Service Act and other federal statutes and regulations, subject pharmaceutical products to rigorous review.

In order to obtain approval of a new product from the FDA, we must, among other requirements, submit proof of safety and efficacy as well as detailed information on the manufacture and composition of the product. In most cases, this proof entails extensive pre-clinical, clinical, and laboratory tests. Before approving a new drug or marketing application, the FDA may also conduct pre-licensing inspections of the company, its contract research organizations and/or its clinical trial sites to ensure that clinical, safety, quality control, and other regulated activities are compliant with Good Clinical Practices ("GCP"), or Good Laboratory Practices ("GLP"), for specific non-clinical toxicology studies. The FDA may also require confirmatory trials, post-marketing testing, and extra surveillance to monitor the effects of approved products, or place conditions on any approvals that could restrict the commercial applications of these products. Once approved, the labeling, advertising, promotion, marketing, and distribution of a drug or biologic product must be in compliance with FDA regulatory requirements.

In Phase 1 clinical trials, the sponsor tests the product in a small number of patients or healthy volunteers, primarily for safety at one or more doses. Phase 1 trials in cancer are often conducted with patients who have end-stage or metastatic cancer. In Phase 2, in addition to safety, the sponsor evaluates the efficacy of the product in a patient population somewhat larger than Phase 1 trials. Phase 3 trials typically involve additional testing for safety and clinical efficacy in an expanded population at geographically dispersed test sites. The FDA may order the temporary or permanent discontinuation of a clinical trial at any time.

The sponsor must submit to the FDA the results of pre-clinical and clinical testing, together with, among other things, detailed information on the manufacture and composition of the product, in the form of a new drug application ("NDA"), or in the case of biologics, a BLA. In a process that can take a year or more, the FDA reviews this application and, when and if it decides that adequate data are available to show that the new compound is both safe and effective for a particular indication and that other applicable requirements have been met, approves the drug or biologic for marketing.

Whether or not we have obtained FDA approval, we must generally obtain approval of a product by comparable regulatory authorities of international jurisdictions prior to the commencement of marketing the product in those jurisdictions. We are also subject to cGMP, GCP, and GLP compliance obligations and are subject to inspection by international regulatory authorities. International requirements may in some circumstances be more rigorous than U.S. requirements and may require additional investment in manufacturing process development, non-clinical studies, clinical studies, and record-keeping that are not required for U.S. regulatory compliance or approval. The time required to obtain this approval may be longer or shorter than that required for FDA approval and can also require significant resources in time, money and labor.

Under the laws of the United States, the countries of the European Union and other nations, we and the institutions where we sponsor research are subject to obligations to ensure the protection of personal information of human subjects participating in our clinical trials. We have instituted procedures that we believe will enable us to comply with these requirements and the contractual requirements of our data sources. The laws and regulations in this area are evolving, and further regulation, if adopted, could affect the timing and the cost of future clinical development activities.

We are also subject to regulation under the Occupational Safety and Health Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, and other current and potential future federal, state, or local regulations. Our research and development activities involve the controlled use of hazardous materials, chemicals, biological materials, various radioactive compounds, and for some experiments we use recombinant DNA. We believe that our procedures comply with the standards prescribed by local, state, and federal regulations; however, the risk of injury or accidental contamination cannot be completely eliminated. We conduct our activities in compliance with the National Institutes of Health Guidelines for Recombinant DNA Research.

Additionally, the U.S. Foreign Corrupt Practices Act ("FCPA"), prohibits U.S. corporations and their representatives from offering, promising, authorizing or making payments to any foreign government official, government staff member, political party or political candidate in an attempt to obtain or retain business abroad. The scope of the FCPA includes interactions with certain healthcare professionals in many countries. Other countries have enacted similar anti-corruption laws and/or regulations.

Competition

Competition in the pharmaceutical and biotechnology industries is intense. Many pharmaceutical or biotechnology companies have products on the market and are actively engaged in the research and development of products for the treatment of cancer.

Many competitors have substantially greater financial, manufacturing, marketing, sales, distribution, and technical resources, and more experience in research and development, clinical trials, and regulatory matters, than we do. Competing companies developing or acquiring rights to more efficacious therapeutic products for the same diseases we are targeting, or which offer significantly lower costs of treatment, could render our products noncompetitive or obsolete. See Part I-Item 1A. “Risk Factors-Risks Related to the Commercialization of Our Product Candidates-Our competitors may have superior products, manufacturing capability, selling and marketing expertise and/or financial and other resources.”

Academic institutions, governmental agencies, and other public and private research institutions conduct significant amounts of research in biotechnology, medicinal chemistry and pharmacology. These entities have become increasingly active in seeking patent protection and licensing revenues for their research results. They also compete with us in recruiting and retaining skilled scientific talent.

The CPM drug landscape is crowded with several competitors developing assets against a number of targets. Our development plans are spread out across various indications and lines of therapy, either alone or in combination with other assets. Our competitors range from small cap to large cap companies, with assets in pre-clinical or clinical stages of development. Therefore, the landscape is dynamic and constantly evolving. We and our partners have CPM antibody programs, currently in clinical stage development targeting various pathways (as mono- or multi-specifics) including PD-1, CTLA-4, GITR, OX40, TIM-3, LAG-3, CD73, TGFb and CD137. We are aware of many companies that have antibody-based products on the market or in clinical development that are directed to the same biological targets as these programs, including, without limitation, the following: (1) BMS markets ipilimumab, an anti-CTLA-4 antibody, and nivolumab, an anti-PD-1 antibody, and is developing additional antagonists to LAG-3, TIM-3 and TGFb. BMS also has next generation anti-CTLA-4 antibodies in the clinic, which may be competitive to our next generation anti-CTLA-4 program, (2) Merck has an approved anti-PD-1 antibody, as well as anti-CTLA-4 and LAG-3 antagonists recruiting in clinical trials, (3) Regeneron has an approved anti-PD-1 antibody as well as antibodies targeting LAG-3 and GITR in the clinic, (4) Roche/Genentech has an approved anti-PD-L1 antibody as well as bispecific antibodies targeting CD137 and LAG-3 in clinical development (5) AstraZeneca has an approved anti PD-L1 antibody, as well as antibodies targeting CTLA-4 and CD73 in the clinic, and (6) Pfizer has an approved anti-PD-L1 (with Merck KgaA) as well as agents targeting PD-1, TGFbR1 and CD137 in clinical development. Besides these PD-1 and PD-L1 antibodies that were approved in the U.S., we are also aware of competitors with approved PD-1 agents in ex-U.S. geographies such as China. These include Innovent Biologics (Eli Lilly has ex-China rights), Shanghai Junshi Biosciences (Coherus BioSciences has rights to co-develop in U.S. and Canada), Shanghai HengRui Pharmaceuticals and Beigene (Novartis has ex-China rights).

We are also aware of other competitors with clinical-stage PD-1/PD-L1 agents including AbbVie, Amgen, Arcus Biosciences, Akeso Bio, Biocad Ltd., Boehringer Ingelheim, Checkpoint Therapeutics, CStone Pharmaceuticals (EQRx has ex-China rights), CSPC ZhongQi Pharmaceutical Technology, GSK, Gilead Sciences, Genor Biopharma/ Apollomics, Genrix (Shanghai) Biopharmaceutical, Incyte, ImmuneOncia Therapeutics Inc., Jounce Therapeutics, Janssen, Lee’s Pharmaceuticals, Mabspace Biosciences, Maxinovel Pharmaceuticals, Novartis, Servier, 3D Medicines, Shanghai Henlius Biotech Co Ltd, Sinocelltech, Shandong New Time Pharmaceutical Co Ltd, and Taizhou Houdeaoke Technology. In addition, we are also aware of anti-PD-(L)1 monospecific agents that are preclinical in stage. We are also aware of competitors developing bispecifics targeting PD-1 or PD-L1.

We are aware of companies developing “next-generation” anti-CTLA-4 approaches, which may be competitive to our next-generation anti-CTLA-4 program (AGEN1181). For example, BMS has 3 next-generation CTLA-4 programs in the clinic: a non-fucosylated anti CTLA-4 antibody, a peptide-masked version of ipilimumab and a peptide masked version of the non-fucosylated anti CTLA-4 antibody; the peptide masked versions are designed to localize activity to the tumor and minimize systemic toxicity associated with parent drug. We are also aware of companies advancing clinical stage, CTLA-4 targeting multispecifics as a next-generation approach, including, but not limited to, Macrogenics, Xencor, AstraZeneca, Akeso Biopharma, Alphamab, Alpine Immune Sciences, and Sichuan Baili Pharmaceuticals. We are also aware of next-generation assets targeting CTLA-4 preclinically.

We are also aware of competitors with clinical stage monospecific drug candidates against CTLA-4, GITR, OX40, LAG-3, TIM-3, CD73, TGFb, and CD137, in addition to those named earlier in this section. As outlined above, some of these include, but are not limited to AbbVie, Adagene, Arcus Biosciences, Alligator Biosciences, Beigene, Compass Therapeutics, Corvus Pharmaceuticals, CStone Therapeutics, Eli Lilly, Innovent Biologics, Inhibrx, Lyvgen Biopharma, MedPacto, Novartis, Astellas, Servier, Scholar Rock, and Sanofi. We are also aware of preclinical stage competitors developing monospecific agents against these targets. Further, we are also aware of competitors developing bispecifics targeting these pathways.

Additionally, we are advancing our TIGIT program towards an IND filing and are aware of competitors with clinical stage anti-TIGIT antibodies. These include, but are not limited to, Arcus Biosciences, BMS, Beigene, Compugen, iTeos Therapeutics, Merck, Mereo Biopharma, Roche, Innovent Biologics, Merck KGaA and Seattle Genetics. We are also aware of competitor programs in

preclinical development against this target. There is no guarantee that our antibody product candidates will be able to successfully compete with our competitors' antibody products and product candidates.

We are conducting both monotherapy and combination trials in second line cervical cancer. We are aware that Merck's PD-1 antagonist, Keytruda, has been approved in advanced cervical cancer. We are also aware of industry sponsored clinical trials, including exploratory studies, that are underway in this setting. Clinical stage competitors include, but are not limited to, Regeneron (anti-PD-1), BMS (anti-PD-1 alone or in combination with CTLA-4), Seattle Genetics and Genmab (antibody drug conjugate targeting Tissue Factor), Iovance Biotherapeutics (autologous TILs), Merck KgaA (anti-PD-L1/TGFb), Roche (anti-PD-L1 alone or in combination with anti-TIGIT), Vaccibody (HPV vaccine in combination with anti-PD-L1), Biocad (anti-PD-1), Genor Biopharma (anti-PD-1), Gloria Biosciences (Anti-PD-1), Shanghai Henlius Biotech (anti-PD-1 in combination with albumin bound paclitaxel), Akeso Bio (anti-PD-1/CTLA-4 bispecific), Lee Pharmaceuticals (anti-PD-L1) and Innovent Biologics (anti-PD-1 alone or in combination with anti-CTLA-4).

We have autologous vaccine programs in clinical development including our Prophage vaccine in clinical development for GBM. We are aware of other therapeutic options in GBM that could compete with our vaccine, including but not limited to the following: Merck markets temozolomide for treatment of patients with newly diagnosed glioblastoma ("ndGBM") and refractory astrocytoma. Other companies are developing vaccines for the treatment of patients with ndGBM, including, but not limited to, Mimivax Inc. (SurVaxM). Other companies may begin development programs as well. We are advancing our neoantigen vaccine, AutoSynVax, in solid tumors. There are companies advancing neoantigen vaccines that compete with our HSP based vaccines including, but not limited to: Gritstone Oncology, BioNTech, Moderna/Merck, Genocea Biosciences, ISA Pharmaceuticals, Nouscom, and Vaccibody.

In addition, and prior to regulatory approval, if ever, our vaccines and our other product candidates may compete for access to patients with other products in clinical development, with products approved for use in the indications we are studying, or with off-label use of products in the indications we are studying. We anticipate that we will face increased competition in the future as new companies enter markets we seek to address and scientific developments surrounding immunotherapy and other traditional cancer therapies continue to accelerate.

Our subsidiary company, AgenTus Therapeutics, is advancing iNKT therapy. We are aware of competitors advancing NKT therapies, including but not limited to, Kuur Therapeutics and BrightPath Biotherapeutics.

Several other vaccine adjuvants are in development or in use and could compete with QS-21 Stimulon for inclusion in vaccines. These adjuvants may include but are not limited to: (1) oligonucleotides, under development by Pfizer, Idera, and Dynavax, (2) MF59, under development by Novartis, (3) IC31, under development by Intercell (now part of Valneva), (4) MPL, under development by GSK, (5) Matrix-MTM, under development by Novavax, (6) AS03, under development by GSK, and (7) TQL 1055, under development by Adjuvance Technologies. In the past, we have provided QS-21 Stimulon to other entities under materials transfer arrangements. In at least one instance, it is possible that this material was used without our permission to develop synthetic formulations and/or derivatives of QS-21. In addition, other companies and academic institutions are developing saponin adjuvants, including derivatives and synthetic formulations. These sources may be competitive to our ability to execute future partnering and licensing arrangements involving QS-21 Stimulon. The existence of products developed by these and other competitors, or other products of which we are not aware, or which other companies may develop in the future, may adversely affect the marketability of products developed or sold using QS-21 Stimulon.

We are also aware of a third party that manufactures pre-clinical material purporting to be comparable to QS-21 Stimulon. The claims being made by this third party may create marketplace confusion and have an adverse effect on the goodwill generated by us and our partners with respect to QS-21 Stimulon. We are also aware of other manufacturers of QS-21. Any diminution of this goodwill may have an adverse effect on our ability to commercialize future products, if any, incorporating this technology, either alone or with a third party.

Employees

As of February 28, 2021, we had 359 employees, of whom 76 were PhDs and 26 were MDs. None of our employees are subject to a collective bargaining agreement. We believe that we have good relations with our employees.

Corporate History

Antigenics L.L.C. was formed as a Delaware limited liability company in 1994 and was converted to Antigenics Inc., a Delaware corporation, in February 2000 in conjunction with our initial public offering of common stock. On January 6, 2011, we changed our name from Antigenics Inc. to Agenus Inc.

Availability of Periodic SEC Reports

Our Internet website address is *www.agenusbio.com*. We make available free of charge through our website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished

pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended ("Exchange Act"), as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the Securities and Exchange Commission (the "SEC"). In addition, we regularly use our website to post information regarding our business, product development programs and governance, and we encourage investors to use our website, particularly the sections entitled "Publications", "Investors" and "Media," as sources of information about us.

The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at www.sec.gov.

The contents of the websites referred to above are not incorporated into this filing. Further, our references to the URLs for these websites are intended to be inactive textual references only.

Item 1A. Risk Factors

Summary of Risk Factors

Our business is subject to a number of risks and uncertainties. The following is a summary of the principal risk factors described in this section:

Risks Related to our Financial Position and Need for Additional Capital

- We have historically incurred net losses and anticipate that we will continue to incur net losses in the future.
- If we fail to obtain additional financing, we will not be able to complete development and commercialization of our product candidates.
- 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.
- Our independent registered public accounting firm has included an explanatory paragraph relating to our ability to continue as a going concern in its report on our audited financial statements.

Risks Related to the Development of Our Product Candidates

- Our business is highly dependent on the success of our balstilimab and zalifrelimab programs.
- Preliminary or interim data that we report on our clinical trials could change materially by the time the data is finalized.
- Our clinical trials or those of our current and future collaborators may reveal significant adverse events.
- If we encounter difficulties enrolling patients in our clinical trials, our clinical development activities could be delayed or otherwise adversely affected.
- We have limited resources, and the number of product candidates that we are attempting to simultaneously advance creates a significant strain on these resources and could prevent us from successfully advancing any candidates.
- We may not be able to advance clinical development or commercialize our cancer vaccine candidates or realize any benefits from these programs.

Risks Related to the Commercialization of Our Product Candidates

- We may not be able to commercialize, or may be delayed in commercializing, our product candidates.
- We expect the novel nature of our product candidates to create challenges in obtaining regulatory approval.
- Our product candidates may cause undesirable side effects.
- Our competitors may have superior products, manufacturing capability, expertise and/or resources.
- Even if our product candidates receive marketing approval, such products may not achieve market acceptance or coverage, or may become subject to unfavorable pricing regulations or third-party reimbursement practices.
- The market opportunities for our product candidates may small, and our estimates of the prevalence of our target patient populations may be inaccurate.
- We have no experience in marketing, selling and distributing products or performing commercial compliance.

Risks Related to Manufacturing and Supply

- Manufacturing challenges could result in having insufficient quantities of our drug candidates or drugs or such quantities at an acceptable cost.

- We own and operate our own clinical scale manufacturing infrastructure, which is costly and time-consuming.

Risks Related to Our Reliance on Third Parties

- We are dependent upon third parties to further develop and commercialize certain of our antibody programs.
- Failure to enter into and/or maintain licensing, distribution and/or collaboration agreements may adversely effect our business.
- If third parties do not carry out their contractual duties, we may not be able to obtain regulatory approval of or commercialize any potential product candidates.

Risks Related to Government Regulation

- The regulatory approval process for our product candidates is uncertain and will be lengthy.
- We may fail to obtain regulatory approval of our product candidates.
- Our relationships with third parties are subject to extensive healthcare laws and regulations.
- If we receive regulatory approval of any product candidates or therapies, we will be subject to ongoing regulatory obligations and continued regulatory review.
- Healthcare regulatory reform measures may have an adverse effect on our business.
- Laws and regulations governing any international operations may preclude us from developing, manufacturing and selling certain products outside of the United States and require us to develop and implement costly compliance programs
- Risks associated with doing business internationally could negatively affect our business.
- Our ability to use net operating losses and tax credits to offset future income may be subject to limitations.

Risks Related to Our Intellectual Property

- We may be unable to obtain and enforce patent protection for our product candidates and related technology.
- If we fail to comply with our intellectual property licenses, we could lose important license rights.
- We may not be able to protect our intellectual property rights throughout the world.
- Changes in U.S. patent law could diminish the value of patents.
- We may be unable to protect the confidentiality of our proprietary information.
- Our employees, consultants or independent contractors could wrongfully use or disclose confidential information.
- We may infringe the patents and other proprietary rights of third parties.
- We may become involved in lawsuits to protect or enforce our patents.

Risks Related to Business Operations, Employee Matters and Managing Growth

- We may encounter difficulties in managing our recent growth and/or corporate consolidation efforts.
- Legal claims against us may reduce demand for our products and/or result in substantial damages.
- Information technology security breaches could result in a material disruption in our business and subject us to sanctions and penalties.
- We may be unsuccessful at advancing our cell therapy business through AgenTus Therapeutics with separate funding.

Risks Related to Our Common Stock

- Our stock’s trading volume and public trading price has been volatile.
- We do not intend to pay cash dividends on our common stock.
- Anti-takeover provisions under our charter documents and Delaware law could delay or prevent a change of control.

Our future operating results could differ materially from the results described in this Annual Report on Form 10-K due to the risks and uncertainties described below. You should consider carefully the following information about risks below in evaluating our business. If any of the following risks actually occur, our business, financial conditions, results of operations and future growth prospects would likely be materially and adversely affected. In these circumstances, the market price of our common stock would likely decline.

We cannot assure investors that our assumptions and expectations will prove to be correct. Important factors could cause our actual results to differ materially from those indicated or implied by forward-looking statements. See “Note Regarding Forward-

Looking Statements" in this Annual Report on Form 10-K. Factors that could cause or contribute to such differences include those factors discussed below.

Risks Related to Our Financial Position and Need for Additional Capital

We have incurred net losses in every year since our inception and anticipate that we will continue to incur net losses in the future.

Investment in I-O 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 no products approved for commercial sale and have not generated any revenue from product sales to date, and we 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 losses in each period since our inception. Our net losses for the years ended December 31, 2020, 2019, and 2018, were $182.9 million, $111.6 million and $162.0 million, respectively. We expect to incur significant losses for the foreseeable future as we continue our research and development efforts, seek regulatory approvals, and begin commercial readiness efforts for our product candidates. We anticipate that our expenses will increase substantially if, and as, we:

- conduct clinical trials for our pipeline of product candidates;
- further develop our antibody programs and platforms, our vaccine programs, and our saponin-based vaccine adjuvants;
- continue to discover and develop additional product candidates;
- maintain, expand and protect our intellectual property portfolio;
- hire additional clinical, scientific manufacturing and commercial personnel;
- expand in-house manufacturing capabilities;
- establish a commercial manufacturing source and secure supply chain capacity sufficient to provide commercial quantities of any product candidates for which we may obtain regulatory approval;
- acquire or in-license other product candidates and technologies;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;
- establish a sales, marketing and distribution infrastructure to commercialize any products for which we may obtain regulatory approval; and
- add operational, regulatory, financial and management information systems and personnel, including personnel to support our product development and planned commercialization efforts.

To become profitable, we or any current or potential future licensees and collaboration partners must develop and eventually commercialize products with significant market potential at an adequate profit margin after cost of goods sold and other expenses. This will require us to be successful in a range of challenging activities, including completing clinical trials, obtaining marketing approval for product candidates, obtaining adequate reimbursement for product candidates, manufacturing, marketing and selling products for which we may obtain marketing approval and satisfying any post-marketing requirements. We may never succeed in any or all of these activities and, even if we do, we may never generate revenue that is significant or large enough to achieve profitability. If we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would decrease the value of our company and could impair our ability to raise capital, maintain our research and development efforts, expand our business or continue our operations. A decline in the value of our company also could cause our stockholders to lose all or part of their investment.

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 in our pipeline. 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.

Furthermore, our ability to generate cash from operations is dependent on the success of our licensees and collaboration partners, as well as the likelihood and timing of new strategic licensing and partnering relationships and/or successful development and commercialization of product candidates, including through our antibody programs and platforms, our vaccine programs, and our saponin-based vaccine adjuvants.

We will require additional capital to fund our operations, and if we fail to obtain necessary financing, we will not be able to complete the development and commercialization of our product candidates.

Our operations have consumed substantial amounts of cash since inception. We expect to continue to spend substantial amounts to conduct further research and development and preclinical or nonclinical testing and studies and clinical trials of our current and future programs, to build a supply chain, to seek regulatory approvals for our product candidates and to launch and commercialize any products for which we receive regulatory approval, including building our own commercial organization. To date, we have financed our operations primarily through the sale of equity, assets, notes, corporate partnerships and interest income. In order to finance future operations, we will be required to raise additional funds in the capital markets, through arrangements with collaboration partners or from other sources.

As of December 31, 2020, we had $99.9 million of cash and cash equivalents. Based on our current plans and projections, we believe that our cash resources as of December 31, 2020, plus additional funding we anticipate from corporate events, will be sufficient to satisfy our liquidity requirements through the end of the year and into 2022. We are presently in financing, partnership, and out licensing discussions which, if consummated, could extend our cash resources further into and beyond 2022. However, our future capital requirements and the period for which our existing resources will support our operations may vary significantly from what we expect, and we will in any event require additional capital in order to complete clinical development of our current programs. Our monthly spending levels will vary based on new and ongoing development and corporate activities. Because the length of time and activities associated with development of our product candidates is highly uncertain, we are unable to estimate the actual funds we will require for development and any approved marketing and commercialization activities. Our future funding requirements, both near and long-term, will depend on many factors, including, but not limited to:

- the initiation, progress, timing, costs and results of preclinical or nonclinical testing and studies and clinical trials for our product candidates;
- the clinical development plans we establish for our product candidates;
- the number and characteristics of future product candidates that we develop or may in-license;
- our ability to establish and maintain strategic partnerships, licensing or other arrangements and the financial terms of such arrangements;
- the timing, receipt and amount of sales of, or royalties on, our future products and those of our partners, if any;
- the outcome, timing and cost of meeting regulatory requirements established by the FDA, the European Medicines Agency (the "EMA") and other comparable foreign regulatory authorities;
- the cost of filing, prosecuting, defending and enforcing our patent claims and other intellectual property rights;
- the cost of defending intellectual property disputes, including patent infringement actions brought by third parties against us or our product candidates;
- the effect of competing technological and market developments;
- the costs of establishing and maintaining a supply chain for the development and manufacture of our product candidates;
- the cost and timing of establishing, expanding and scaling manufacturing capabilities; and

- the cost of establishing sales, marketing and distribution capabilities for any product candidates for which we may receive regulatory approval in regions where we choose to commercialize our products on our own.

We do not have any committed external source of funds or other support for our development efforts and we cannot be certain that additional funding will be available on acceptable terms, or at all. Until we can generate sufficient product or royalty revenue to finance our cash requirements, which we may never do, we expect to finance our future cash needs through a combination of public or private equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements and other marketing or distribution arrangements. 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 one or more of our products or product candidates or one or more of our other research and development initiatives. 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 and we may become insolvent.

From time to time we have issued, and in the future expect to issue, projections regarding our future cash position. Such projections include the expectation that we will be able to raise additional funds from the aforementioned sources and our ability to do so is subject to the risks described herein.

General economic conditions in the United States and abroad, whether as a result of a public health crisis, such as COVID-19, the policies of the Biden Administration or otherwise, may have a material adverse effect on our liquidity and financial condition, particularly if our ability to raise additional funds is impaired.

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, our stockholders' ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect their 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 also could be required to seek collaborators for one or more of our current or future product candidates at an earlier stage than otherwise would be desirable or relinquish our rights to product candidates or technologies that we otherwise would seek to develop or commercialize ourselves.

The nature and length of our operating history may make it difficult to evaluate our technology and product development capabilities and predict our future performance.

We have no products approved for commercial sale and have not generated any revenue from product sales. Our ability to generate product revenue or profits, which we do not expect will occur until 2022, if ever, will depend on the successful development and eventual commercialization of our product candidates, which may never occur. We may never be able to develop or commercialize a marketable product.

All of our programs require additional pre-clinical or clinical research and development, manufacturing supply, capacity and/or expertise, building of a commercial organization, substantial investment and/or significant marketing efforts before we generate any revenue from potential product sales. Other programs of ours require additional discovery research and then preclinical development. In addition, our product candidates must be approved for marketing by the FDA or certain other health regulatory agencies, including the EMA, before we may commercialize any product.

Our operating history, particularly in light of the rapidly evolving I-O field, may make it difficult to evaluate our technology and industry and predict our future performance. We will encounter risks and difficulties frequently experienced by clinical stage companies in rapidly evolving fields. If we do not address these risks successfully, our business will suffer. Similarly, we expect that our financial condition and operating results will fluctuate significantly from quarter to quarter and year to year due to a variety of factors, many of which are beyond our control. As a result, our stockholders should not rely upon the results of any quarterly or annual period as an indicator of future operating performance.

In addition, as a clinical stage company, we have encountered unforeseen expenses, difficulties, complications, delays and other known and unknown circumstances. As we advance our product candidates, we will need to transition from a company with a research and clinical focus to a company capable of supporting commercial activities. We may not be successful in such a transition.

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

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, and the volatility of such market and economic conditions have increased as a result of the COVID-19 pandemic. The scope, duration and long-term impact of the COVID-19 pandemic are unknown at this time, so there can be no assurance how significant any deterioration in credit and financial markets and confidence in economic conditions will be and how long it may continue. 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, or do not improve, 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 for some or all of our pipeline candidates. In addition, there is a risk that one or more of our current service providers, manufacturers and other partners may not survive these difficult economic times, which could directly affect our ability to attain our operating goals on schedule and on budget.

As of December 31, 2020, we had cash and cash equivalents of $99.9 million. While we are not aware of any downgrades, material losses, or other significant deterioration in the fair value of our cash equivalents and investments since December 31, 2020, no assurance can be given that deterioration of the global credit and financial markets would not negatively impact our current portfolio of cash equivalents or our ability to meet our financing objectives. Furthermore, our stock price may decline due in part to the volatility of the stock market and any general economic downturn.

Our independent registered public accounting firm has included an explanatory paragraph relating to our ability to continue as a going concern in its report on our audited financial statements, and it is possible that such report on our financial statements may include such an explanation again in the future.

We believe we have sufficient capital, including funding anticipated from corporate events, to fund our operations through the end of the year and into 2022. Going forward, if we are unable to obtain sufficient funding to support our operations, we could be forced to delay, reduce or eliminate all of our research and development programs, product portfolio expansion or commercialization efforts, our financial condition and results of operations will be materially and adversely affected, and we may be unable to continue as a going concern. In the future, reports from our independent registered public accounting firm may also contain statements expressing substantial doubt about our ability to continue as a going concern. If we seek additional financing to fund our business activities in the future and there remains substantial doubt about our ability to continue as a going concern, investors or other financing sources may be unwilling to provide additional funding to us on commercially reasonable terms, if at all.

Our obligations to the holders of our promissory notes could materially and adversely affect our liquidity.

In February 2015, we issued senior subordinated promissory notes in the aggregate principal amount of $14.0 million, of which $13.0 million remains outstanding, with annual interest of 8% (the “2015 Subordinated Notes”). The 2015 Subordinated Notes were previously due February 20, 2020, and in February 2020, we amended the 2015 Subordinate Notes to extend the maturity date to February 20, 2023. The 2015 Subordinated Notes include default provisions that allow for the acceleration of the principal payment of the 2015 Subordinated Notes in the event we become involved in certain bankruptcy proceedings, become insolvent, fail to make a payment of principal or (after a grace period) interest on the 2015 Subordinated Notes, default on other indebtedness with an aggregate principal balance of $13.0 million or more if such default has the effect of accelerating the maturity of such indebtedness, or become subject to a legal judgment or similar order for the payment of money in an amount greater than $13.0 million if such amount will not be covered by third-party insurance. If we default on the 2015 Subordinated Notes and the repayment of such indebtedness is accelerated, our liquidity could be materially and adversely affected.

In May 2020, we issued promissory notes in the aggregate principal amount of approximately $6.2 million (“PPP Loan”) pursuant to the Paycheck Protection Program of the Coronavirus Aid, Relief and Economic Security Act of 2020 (the “CARES Act”). Under the current terms of the CARES Act, our PPP Loan is eligible for forgiveness if the proceeds are used for covered payroll costs, rent and utilities during the 8 to 24-week period immediately following receipt of the proceeds. Though we have not yet finalized our forgiveness submission, we believe we used the proceeds of the PPP Loan in accordance with the relevant terms and conditions of the

CARES Act. However, the CARES Act regulations have been revised multiple times since they were initially published in March 2020. Our PPP Loan may not qualify for forgiveness under the final regulations of the CARES Act, and we may be required to repay the PPP Loan in full, with interest.

If we do not have sufficient cash on hand to service or repay our 2015 Subordinated Notes or PPP Loan, we may be required to raise additional capital which entails the risks described herein.

Risks Related to the Development of Our Product Candidates

Our business is highly dependent on the success of our balstilimab and zalifrelimab programs initially targeting second-line cervical cancer, which still require significant additional clinical development.

Our business and future success depends in large part on our ability to obtain regulatory approval of, and then successfully launch and commercialize, our initial product candidates targeting second line cervical cancer.

Our anti-PD-1 and anti-CTLA-4 programs (balstilimab and zalifrelimab, respectively) are in Phase 2 expansion trials with both balstilimab monotherapy and balstilimab/zalifrelimab combination trials for patients with second-line cervical cancer that are designed to support BLA filings under the FDA's accelerated approval pathway. In September 2020, we initiated a rolling submission of our first BLA, for balstilimab monotherapy, which we expect to complete in the first half of 2021. After the FDA accepts our BLA filing for balstilimab monotherapy, we expect to solidify our strategy for the balstilimab/zalifrelimab combination filing, pending further discussion with the FDA. These timelines are aggressive and subject to various factors outside of our control, including regulatory review and approval. In order to file a BLA and seek accelerated approval, we must launch a confirmatory trial which will need to be well underway at the time of BLA approval. We have planned, but not yet initiated, the trial intended to satisfy this requirement, and there is no guarantee that the trial will be considered substantially underway at the time of BLA submission. Furthermore, the COVID-19 pandemic could prevent us from initiating a confirmatory trial on our planned timeline. There is no guarantee that we will be able to complete either or both of our BLA submissions on schedule, or that we will be able to commercialize these assets even if we receive approval. If our anti-PD-1 and anti-CTLA-4 programs encounter safety, efficacy, supply or manufacturing problems, developmental delays, regulatory or commercialization issues or other problems, our development plans and business would be significantly harmed.

Even though we have observed positive results to date, they may not necessarily be predictive of the final results of the trials or future clinical trials or otherwise be sufficient to support an accelerated approval. Many companies in the pharmaceutical, biopharmaceutical and biotechnology industries have suffered significant setbacks in clinical trials after achieving positive results, and we cannot be certain that we will not face similar setbacks.

All of our other product candidates are in earlier stages of development and will require additional nonclinical and/or 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.

The successful development of immune modulating antibodies, including our balstilimab and zalifrelimab programs, is highly uncertain.

Successful development of immune modulating antibodies, such as our balstilimab and zalifrelimab programs, is highly uncertain and is dependent on numerous factors, many of which are beyond our control. Immune modulating antibodies that appear promising in the early phases of development may fail to reach, or remain in, the market for several reasons, including:

- clinical trial results may show our candidates to be less effective than expected (e.g., a clinical trial could fail to meet its primary endpoint(s)) or to have unacceptable side effects, toxicities or other negative consequences;

- failure to receive the necessary regulatory approvals or a delay in receiving such approvals. Among other things, such delays may be caused by slow enrollment in clinical trials, patients dropping out of trials, length of time to achieve trial endpoints, additional time requirements for data analysis, or BLA preparation, discussions with the FDA, an FDA request for a diagnostic or additional nonclinical or clinical data, or unexpected safety or manufacturing issues;

- manufacturing costs, formulation issues, pricing or reimbursement issues, or other factors that make the candidates uneconomical;

- proprietary rights of others and their competing products and technologies that may prevent our candidates from being commercialized; and
- failure to initiate or successfully complete confirmation trials for candidates that receive accelerated approval.

The length of time necessary to complete clinical trials and to submit an application for marketing approval for a final decision by a regulatory authority may be difficult to predict for immune modulating antibodies.

Even if we are successful in obtaining market approval, commercial success of any approved products will also depend in large part on the availability of insurance coverage and adequate reimbursement from third-party payors, including government payors, such as the Medicare and Medicaid programs, and managed care organizations, which may be affected by existing and future healthcare reform measures designed to reduce the cost of healthcare. Third-party payors may limit the definition of the target treatment population to one smaller than that implied in the label granted by regulatory authorities, and could require us to conduct additional studies, including post-marketing studies related to the cost-effectiveness of a product, to qualify for reimbursement, which could be costly and divert our resources. If government and other healthcare payors were not to provide adequate insurance coverage and reimbursement levels for any one of our products once approved, market acceptance and commercial success would be reduced.

In addition, if any of our products are approved for marketing, we will be subject to significant regulatory obligations regarding the submission of safety and other post-marketing information and reports and registration, and will need to continue to comply (or ensure that our third-party providers comply) with cGMPs and good clinical practices ("GCPs"), for any clinical trials that we conduct post-approval. In addition, there is always the risk that we or a regulatory authority might identify previously unknown problems with a product post-approval, such as adverse events of unanticipated severity or frequency. Compliance with these requirements is costly and any failure to comply or other issues with our product candidates' post-approval could have a material adverse effect on our business, financial condition and results of operations.

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 trials. 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 and mature over time. 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. Multiple times last year, and most recently in November 2020, we reported positive interim data from our lead trials of balstilimab and zalifrelimab. In February 2021, we also reported new clinical responses from a Phase 1/2 trial of AGEN1181, as well as positive preliminary results of AgenTus' iNKT cell therapy trial in COVID-19 patients. Each of these results may not be indicative of the final results from the relevant study, and the final results may not support a marketing approval for any of these candidates. There is no guarantee that either balstilimab monotherapy or balstilimab/zalifrelimab combination therapy (or any of our earlier stage programs) will receive marketing approval in any jurisdiction, and failure to achieve marketing approval for either of these programs could have a material adverse impact on our business. Any adverse differences between preliminary or interim data and final data could significantly harm our business prospects.

Preclinical development is uncertain. Some of our antibody programs are in early stage development that may experience delays or may never advance to clinical trials, which would adversely affect our ability to obtain regulatory approvals or commercialize these programs on a timely basis or at all, and which would have an adverse effect on our business.

Several of our proprietary antibody programs are currently in early stage development, and many of our antibody programs are pre-clinical. We cannot be certain of the timely completion or outcome of our preclinical testing and studies and cannot predict if the FDA or other regulatory authorities will accept our proposed clinical programs or if the outcome of our preclinical testing and studies will ultimately support the further development of our programs. As a result, we cannot be sure that we will be able to submit INDs or similar applications for our preclinical programs on the timelines we expect, if at all, and we cannot be sure that submission of INDs or similar applications will result in the FDA or other regulatory authorities allowing clinical trials to begin.

Our clinical trials or those of our current and future collaborators may reveal significant adverse events not seen in our preclinical or nonclinical studies and may result in a safety profile that could inhibit regulatory approval or market acceptance of any of our product candidates.

Before obtaining regulatory approvals for the commercial sale of any products, we must demonstrate through potentially lengthy, complex and expensive preclinical studies and clinical trials that our product candidates are both safe and effective for use in each target indication. Failure can occur at any time during the clinical trial process.

Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy profile despite having progressed through nonclinical 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 or unacceptable safety issues, notwithstanding promising results in earlier trials. Most product candidates that commence clinical trials are never approved as products and there can be no assurance that any of our current or future clinical trials will ultimately be successful or support further clinical development of any of our product candidates.

We intend to develop our existing antibody candidates, and may develop future product candidates, alone and in combination with one or more additional cancer therapies. The uncertainty resulting from the use of our product candidates in combination with other cancer therapies may make it difficult to accurately predict side effects in future clinical trials.

If significant adverse events or other side effects are observed in any of our current or future clinical trials, we may have difficulty recruiting patients to our clinical trials, patients may drop out of our trials, or we may be required to abandon the trials or our development efforts of one or more product candidates altogether. We, the FDA or other applicable regulatory authorities, or an institutional review board may suspend clinical trials of a product candidate at any time for various reasons, including a belief that subjects in such trials are being exposed to unacceptable health risks or adverse side effects. Some potential therapeutics developed in the biotechnology industry that initially showed therapeutic promise in early-stage trials have later been found to cause side effects that prevented their further development. Even if the side effects do not preclude the drug from obtaining or maintaining marketing approval, undesirable side effects may inhibit market acceptance of any approved product due to its tolerability versus other therapies. Any of these developments could materially harm our business, financial condition and prospects.

Positive results from preclinical and clinical studies of our product candidates are not necessarily predictive of the results of later preclinical studies and any future clinical trials of our product candidates. If we cannot replicate the positive results from our earlier studies of our product candidates in our later studies and future clinical trials, we may be unable to successfully develop, obtain regulatory for and commercialize our product candidates.

Any positive results from our preclinical studies of our product candidates may not necessarily be predictive of the results from required later preclinical studies and clinical trials. Similarly, even if we are able to complete our planned preclinical studies or any future clinical trials of our product candidates according to our current development timeline, the positive results from such preclinical studies and clinical trials of our product candidates may not be replicated in subsequent preclinical studies or clinical trial results. Moreover, positive results observed in interim data may not necessarily be predictive of the results from final, more mature data.

For example, in 2018 we presented early data on our balstilimab and zalifrelimab programs at major oncology conferences that demonstrated a clinical benefit (i.e., complete response, partial response or disease stabilization) in more than 60% of patients treated with balstilimab and zalifrelimab at that time. In September 2020, we reported interim data from our registrational trials of these same programs that showed overall response rates of approximately 14% with balstilimab monotherapy and approximately 22% with balstilimab/zalifrelimab combination therapy. The final data readouts on these programs may not show similar positive results.

Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials after achieving positive results in early-stage development and we cannot be certain that we will not face similar setbacks. These setbacks have been caused by, among other things, preclinical and other nonclinical findings made while clinical trials were underway, or safety or efficacy observations made in preclinical studies and clinical trials, including previously unreported adverse events. Moreover, preclinical, nonclinical and clinical data are often susceptible to varying interpretations and analyses and many companies that believed their product candidates performed satisfactorily in preclinical studies and clinical trials nonetheless failed to obtain FDA or EMA approval.

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 severity of the disease under investigation;

- the patient eligibility and exclusion 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 trial sites;
- the design of the trial;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;
- clinicians' and patients' perceptions as to the potential advantages and risks of the product candidate being studied in relation to other available therapies, including any new drugs that may be in clinical development or approved for the indications we are investigating;
- the efforts to facilitate timely enrollment in clinical trials;
- the patient referral practices of physicians;
- the ability to monitor patients adequately during and after treatment;
- our ability to obtain and maintain patient consents; and
- the risk that patients enrolled in clinical trials will drop out of the trials before 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, we expect to conduct some of our clinical trials at the same clinical trial sites that some of our competitors use, which will reduce the number of patients who are available for our clinical trials in such clinical trial site. Moreover, because our product candidates represent a departure from more commonly used methods for our targeted therapeutic areas, potential patients and their doctors may be inclined to use conventional or newly launched competitive therapies, rather than enroll patients in any future clinical trial.

Delays in patient enrollment may result in increased costs or may affect the timing or outcome of the planned clinical trials, which could prevent completion of these trials and adversely affect our ability to advance the development of our product candidates. The COVID-19 pandemic may cause delays in the patient enrollment in our clinical trials and could prevent the completion and/or timely completion of such trials.

The number of product candidates that we are attempting to simultaneously advance creates a significant strain on our resources and may prevent us from successfully advancing any product candidates. If, due to our limited resources and access to capital, we prioritize development of certain product candidates, such decisions may prove to be wrong and may adversely affect our business.

We are currently advancing multiple immune modulating antibodies, vaccines, vaccine adjuvants and adoptive cell therapies (through our AgenTus subsidiary). Simultaneously advancing so many product candidates creates a significant strain on our limited human and financial resources. As a result, we may not be able to provide sufficient resources to any single product candidate to permit the successful development and commercialization of such product candidate, causing material harm to our business.

If, due to our limited resources and access to capital, we prioritize development of certain product candidates that ultimately prove to be unsuccessful, we may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential or a greater likelihood of success. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities.

We may not be able to advance clinical development or commercialize our cancer vaccine candidates or realize any benefits from these programs.

The probability of future clinical development efforts leading to marketing approval and commercialization of Prophage vaccines is highly uncertain. Prophage vaccines have been in clinical development for over 18 years, including multiple Phase 1 and 2 trials in eight different tumor types as well as randomized Phase 3 trials in metastatic melanoma and adjuvant renal cell carcinoma. To date, the only marketing approval for Prophage is in Russia where commercialization of the approved product was unsuccessful. All of our currently planned trials involving Prophage are intended to be sponsored by third parties, and there is no guarantee that they will occur at all.

Our current clinical trial plans with Prophage vaccines entail one government sponsored IND in which we provide support and product supply. For third-party sponsored trials, we lack the ability to control trial design, timelines, tumor tissue procurement and data availability. For example, in January 2017, we announced a clinical trial collaboration with the NCI, whereby the NCI is conducting a double-blind, randomized controlled Phase 2 trial to evaluate the effect of Prophage vaccine in conjunction with Merck's pembrolizumab on the overall survival rate of patients with ndGBM. In addition, the Phase 2 trial of Prophage vaccine in combination with bevacizumab in patients with surgically resectable recurrent glioma that was being conducted under the sponsorship of the Alliance for Clinical Trials in Oncology, a cooperative group of the NCI, has been closed. Our other cancer vaccine programs (ASV and PSV) are in Phase 1 and pre-clinical development, respectively, and there is no guarantee that they will successfully advance in and through the clinic. ASV also utilizes QS-21 Stimulon, and any inability or delay in securing adequate supplies of the adjuvant could have an adverse impact on the program or otherwise delay timelines. Current and future studies may eventually be terminated due to, among other things, slow enrollment, lack of probability that they will yield useful translational and/or efficacy data, lengthy timelines, or the unlikelihood that results will support timely or successful regulatory filings.

Our synthetic Heat Shock Protein ("HSP") peptide-based platform is in early stage development, and there is no guarantee that a product candidate will progress from this platform.

In June 2014, we reported positive results from a Phase 2 trial with HerpV™, a vaccine candidate for genital herpes from our synthetic HSP peptide-based platform. The Phase 2 trial met its formal endpoints, but subjects were not followed long enough to determine whether the magnitude of the effect on viral load would be sufficient to significantly reduce the incidence, severity, or duration of herpetic lesions or reduce the risk of viral transmission. Although we have not advanced this program into a Phase 3 trial, we initiated our ASV synthetic cancer vaccine program based on our prior findings with this platform. We initiated our first clinical trial for our first AutoSynVax product candidate in 2017 and reported safety and immunogenicity of the vaccine at CIMT2018. Although we have planned to initiate a combination trial with ASV and one or more of our antibodies, the timeline is uncertain and there is no guarantee that we will be able to do so at all. Furthermore, it is possible that research and discoveries by others will render any product candidate from this platform as obsolete or noncompetitive.

Risks Related to the Commercialization of Our Product Candidates

If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals for our product candidates, we will not be able to commercialize, or will be delayed in commercializing, our product candidates, and our ability to generate revenue will be materially impaired.

Our product candidates and the activities associated with their development and commercialization, including their design, testing, manufacture, safety, efficacy, recordkeeping, labeling, storage, approval, advertising, promotion, sale, distribution, import and export are subject to comprehensive regulation by the FDA and other regulatory agencies in the United States and by comparable authorities in other countries. Before we can commercialize any of our product candidates, we must obtain marketing approval. Except for Prophage in Russia, we have not received approval to market any of our product candidates from regulatory authorities in any jurisdiction and it is possible that none of our product candidates or any product candidates we may seek to develop in the future will ever obtain regulatory approval. We, as a company, have limited experience in filing and supporting the applications necessary to gain regulatory approvals and expect to rely in part on third-party contract research organizations ("CROs") and/or regulatory consultants to assist us in this process. Securing regulatory approval requires the submission of extensive preclinical and clinical data and supporting information to the various regulatory authorities for each therapeutic indication to establish the product candidate's safety and efficacy. Securing regulatory approval also requires the submission of information about the drug manufacturing process to, and inspection of manufacturing facilities by, the relevant regulatory authority. Our product candidates may not be effective, may be only moderately effective or may prove to have undesirable or unintended side effects, toxicities or other characteristics that may preclude our obtaining marketing approval or prevent or limit commercial use.

The process of obtaining regulatory approvals, both in the United States and abroad, is expensive, may take many years if additional clinical trials are required, if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity and novelty of the product candidates involved. Changes in marketing approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted IND, Premarket Approval, BLA or equivalent application types, may cause delays in the approval or rejection of an application. The FDA and comparable authorities in other countries have substantial discretion in the approval process and may refuse to accept any application or may decide that our data are insufficient for approval and require additional preclinical, clinical or other studies. Our product candidates could be delayed in receiving, or 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 a product candidate is safe and effective for its proposed indication or a related companion diagnostic is suitable to identify appropriate patient populations;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval;
- we may be unable to demonstrate that a product candidate's clinical and other benefits outweigh its 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 support the submission of an BLA or other submission or to obtain regulatory approval in the United States or elsewhere;
- the FDA or comparable foreign regulatory authorities may fail to approve our manufacturing processes or facilities or those of our third-party manufacturers with which we contract for clinical and commercial supplies; 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.

Of the large number of drugs in development, only a small percentage successfully complete the FDA or foreign regulatory approval processes and are commercialized. The lengthy approval process as well as the unpredictability of future clinical trial results may result in our failing to obtain regulatory approval to market our product candidates, which would significantly harm our business, results of operations and prospects.

We expect the novel nature of our product candidates to create further challenges in obtaining regulatory approval. As a result, our ability to develop product candidates and obtain regulatory approval may be significantly impacted.

The general approach for FDA approval of a new biologic or drug is for sponsors to seek licensure or approval based on dispositive data from well-controlled, Phase 3 clinical trials of the relevant product candidate in the relevant patient population. Phase 3 clinical trials typically involve hundreds of patients, have significant costs and take years to complete. We are utilizing and, in the future, intend to utilize FDA's accelerated approval program for our product candidates given the limited alternatives for treatments for certain rare diseases, cancer and autoimmune diseases, but the FDA may not agree with our plans. Moreover, even if we do receive accelerated approval from the FDA for one or more of our product candidates, there is no guarantee that we will be able to successfully complete one or more confirmatory trials needed to obtain full approval.

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 approval. The opinion of the Advisory Committee, although not binding, may have a significant impact on our ability to obtain approval of any product candidates that we develop based on the completed clinical trials.

Moreover, approval of genetic or biomarker diagnostic tests may be necessary in order to advance some of our product candidates to clinical trials or potential commercialization. In the future, regulatory agencies may require the development and approval of such tests. Accordingly, the regulatory approval pathway for such product candidates may be uncertain, complex, expensive and lengthy, and approval may not be obtained.

In addition, even if we were to obtain approval, regulatory authorities may approve any of our product candidates for fewer or more limited indications than we request, may not approve the price we intend to charge for our products, may grant approval

contingent on the performance of costly post-marketing clinical trials, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. Any of the foregoing scenarios could reduce the size of the potential market for our product candidates and materially harm the commercial prospects for our product candidates.

If we experience delays in obtaining approval or if we fail to obtain approval of our product candidates, the commercial prospects for our product candidates may be harmed and our ability to generate revenues will be materially impaired.

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 nonclinical studies or clinical trials as clinical trials 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.

Our product candidates may cause undesirable side effects that could delay or prevent their regulatory approval, limit the commercial profile of an approved label, or result in significant negative consequences following marketing approval, if any.

Undesirable side effects caused by our product candidates could cause us to interrupt, delay or halt preclinical studies or 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 regulatory authorities. As is the case with many treatments for cancer and autoimmune diseases, it is likely that there may be side effects associated with their use. Results of our trials could reveal a high and unacceptable severity and prevalence of these or other side effects. In such an event, our trials could be suspended or terminated, and the FDA or comparable foreign regulatory authorities could order us to cease further development of or deny approval of our product candidates for any or all targeted indications. The treatment-related side effects could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may harm our business, financial condition and prospects significantly.

Further, clinical trials by their nature utilize a sample of the potential patient population. With a limited number of patients and limited duration of exposure, rare and severe side effects of our product candidates may only be uncovered with a significantly larger number of patients exposed to the product candidate. If our product candidates receive marketing approval and we or others identify undesirable side effects caused by such product candidates (or any other similar drugs) after such approval, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw or limit their approval of such product candidates;
- regulatory authorities may require the addition of labeling statements, such as a “boxed” warning or a contraindication;
- we may be required to create a medication guide outlining the risks of such side effects for distribution to patients;
- we may be required to change the way such product candidates are distributed or administered, conduct additional clinical trials or change the labeling of the product candidates;

- regulatory authorities may require a Risk Evaluation and Mitigation Strategy("REMS"), plan to mitigate risks, which 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;
- we may be subject to regulatory investigations and government enforcement actions;
- we may decide to remove such product candidates from the marketplace;
- we could be sued and held liable for injury caused to individuals exposed to or taking our product candidates; and
- our reputation may suffer.

We believe that any of these events could prevent us from achieving or maintaining market acceptance of the affected product candidates and could substantially increase the costs of commercializing our product candidates, if approved, and significantly impact our ability to successfully commercialize our product candidates and generate revenues.

Our competitors may have superior products, manufacturing capability, selling and marketing expertise and/or financial and other resources.

Our product candidates and the product candidates in development by our collaboration partners may fail because of competition from major pharmaceutical companies and specialized biotechnology companies that market products, or that are engaged in the development of product candidates and for the treatment cancer. Many of our competitors, including large pharmaceutical companies, have substantially greater financial, technical and other resources than we do, such as larger research and development staff, experienced marketing and manufacturing organizations and well-established sales forces. Our competitors may:

- develop safer or more effective therapeutic drugs or therapeutic vaccines and other products;
- establish superior intellectual property positions;
- discover technologies that may result in medical insights or breakthroughs, which render our drugs or vaccines obsolete, possibly before they generate any revenue, if ever;
- adversely affect our ability to recruit patients for our clinical trials;
- solidify partnerships or strategic acquisitions that may increase the competitive landscape;
- develop or commercialize their product candidates sooner than we commercialize our own, if ever; or
- implement more effective approaches to sales, marketing and patient assistance programs and capture some of our potential market share.

Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large, established companies. Established pharmaceutical companies may also invest heavily to accelerate discovery and development of novel therapeutics or to in-license novel therapeutics that could make the product candidates that we develop obsolete. 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.

There is no guarantee that our product candidates will be able to compete with potential future products being developed by our competitors.

The CPM drug landscape is crowded with several competitors developing assets against a number of targets. Our development plans are spread out across various indications and lines of therapy, either alone or in combination with other assets. Our competitors range from small cap to large cap companies, with assets in pre-clinical or clinical stages of development. Therefore, the landscape is dynamic and constantly evolving. We and our partners have CPM antibody programs, currently in clinical stage development targeting various pathways (as mono- or multi-specifics) including PD-1, CTLA-4, GITR, OX40, TIM-3, LAG-3, CD73, TGFb and CD137. We are aware of many companies that have antibody-based products on the market or in clinical development that are directed to the same biological targets as these programs, including, without limitation, the following: (1) BMS markets ipilimumab, an anti-CTLA-4 antibody, and nivolumab, an anti-PD-1 antibody, and is developing additional antagonists to LAG-3, TIM-3 and TGFb. BMS also has next generation anti-CTLA-4 antibodies in the clinic, which may be competitive to our next generation anti-CTLA-4 program, (2) Merck has an approved anti-PD-1 antibody, as well as anti-CTLA-4 and LAG-3 antagonists recruiting in

clinical trials, (3) Regeneron has an approved anti-PD-1 antibody as well as antibodies targeting LAG-3 and GITR in the clinic, (4) Roche/Genentech has an approved anti-PD-L1 antibody as well as bispecific antibodies targeting CD137 and LAG-3 in clinical development, (5) AstraZeneca has an approved anti PD-L1 antibody, as well as antibodies targeting CTLA-4 and CD73 in the clinic, and (6) Pfizer has an approved anti-PD-L1 (with Merck KgaA) as well as agents targeting PD-1, TGFbR1 and CD137 in clinical development. Besides these PD-1 and PD-L1 antibodies that were approved in the U.S., we are also aware of competitors with approved PD-1 agents in ex-U.S. geographies such as China. These include Innovent Biologics (Eli Lilly has ex-China rights), Shanghai Junshi Biosciences (Coherus BioSciences has rights to co-develop in U.S. and Canada), Shanghai HengRui Pharmaceuticals and Beigene (Novartis has ex-China rights).

We are also aware of other competitors with clinical-stage PD-1/PD-L1 agents including but limited to AbbVie, Amgen, Arcus Biosciences, Akeso Bio, Biocad Ltd., Boehringer Ingelheim, Checkpoint Therapeutics, CStone Pharmaceuticals (EQRx has ex-China rights), CSPC ZhongQi Pharmaceutical Technology, GSK, Gilead Sciences, Genor Biopharma/ Apollomics, Genrix (Shanghai) Biopharmaceutical, Incyte, ImmuneOncia Therapeutics Inc., Jounce Therapeutics, Janssen, Lee's Pharmaceuticals, Mabspace Biosciences, Maxinovel Pharmaceuticals, Novartis, Servier, 3D Medicines, Shanghai Henlius Biotech Co Ltd, Sinocelltech, Shandong New Time Pharmaceutical Co Ltd, and Taizhou Houdeaoke Technology. In addition, we are also aware of anti-PD-(L)1 monospecific agents that are preclinical in stage. We are also aware of competitors developing bispecifics targeting PD-1 or PD-L1.

We are aware of companies developing "next-generation" anti-CTLA-4 approaches, which may be competitive to our next-generation anti-CTLA-4 program (AGEN1181). For example, BMS has 3 next-generation CTLA-4 programs in the clinic: a non-fucosylated anti CTLA-4 antibody, a peptide-masked version of ipilimumab and a peptide masked version of the non-fucosylated anti CTLA-4 antibody; the peptide masked versions are designed to localize activity to the tumor and minimize systemic toxicity associated with parent drug. We are also aware of companies advancing clinical stage, CTLA-4 targeting multispecifics as a next-generation approach, including, but not limited to, Macrogenics, Xencor, AstraZeneca, Akeso Biopharma, Alphamab, Alpine Immune Sciences, and Sichuan Baili Pharmaceuticals. We are also aware of next-generation assets targeting CTLA-4 preclinically.

We are also aware of competitors with clinical stage monospecific drug candidates against CTLA-4, GITR, OX40, LAG-3, TIM-3, CD73, TGFb, and CD137, in addition to those named earlier in this section. As outlined above, some of these include, but are not limited to AbbVie, Adagene, Arcus Biosciences, Alligator Biosciences, Beigene, Compass Therapeutics, Corvus Pharmaceuticals, CStone Therapeutics, Eli Lilly, Innovent Biologics, Inhibrx, Lyvgen Biopharma, MedPacto, Novartis, Astellas, Servier, Scholar Rock, and Sanofi. We are also aware of preclinical stage competitors developing monospecific agents against these targets. Further, we are also aware of competitors developing bispecifics targeting these pathways.

Additionally, we are advancing our TIGIT program towards an IND filing and are aware of competitors with clinical stage anti-TIGIT antibodies. These include, but are not limited to, Arcus Biosciences, BMS, Beigene, Compugen, iTeos Therapeutics, Merck, Mereo Biopharma, Roche, Innovent Biologics, Merck KGaA and Seattle Genetics. We are also aware of competitor programs in preclinical development against this target. There is no guarantee that our antibody product candidates will be able to successfully compete with our competitors' antibody products and product candidates.

We are conducting both monotherapy and combination trials in second line cervical cancer. We are aware that Merck's PD-1 antagonist, Keytruda, has been approved in advanced cervical cancer. We are also aware of industry sponsored clinical trials, including exploratory studies, that are underway in this setting. Clinical stage competitors include, but are not limited to, Regeneron (anti-PD-1), BMS (anti-PD-1 alone or in combination with CTLA-4), Seattle Genetics and Genmab (antibody drug conjugate targeting Tissue Factor), Iovance Biotherapeutics (autologous TILs), Merck KgaA (anti-PD-L1/TGFb), Roche (anti-PD-L1 alone or in combination with anti-TIGIT), Vaccibody (HPV vaccine in combination with anti-PD-L1), Biocad (anti-PD-1), Genor Biopharma (anti-PD-1), Gloria Biosciences (Anti-PD-1), Shanghai Henlius Biotech (anti-PD-1 in combination with albumin bound paclitaxel), Akeso Bio (anti-PD-1/CTLA-4 bispecific), Lee Pharmaceuticals (anti-PD-L1) and Innovent Biologics (anti-PD-1 alone or in combination with anti-CTLA-4).

We have autologous vaccine programs in clinical development including our Prophage vaccine in clinical development for GBM. We are aware of other therapeutic options in GBM that could compete with our vaccine, including but not limited to the following: Merck markets temozolomide for treatment of patients with newly diagnosed glioblastoma ("ndGBM") and refractory astrocytoma. Other companies are developing vaccines for the treatment of patients with ndGBM, including, but not limited to, Mimivax Inc. (SurVaxM). Other companies may begin development programs as well. We are advancing our neoantigen vaccine, AutoSynVax, in solid tumors. There are companies advancing neoantigen vaccines that compete with our HSP based vaccines including, but not limited to: Gritstone Oncology, BioNTech, Moderna/Merck, Genocea Biosciences, ISA Pharmaceuticals, Nouscom, and Vaccibody.

In addition, and prior to regulatory approval, if ever, our vaccines and our other product candidates may compete for access to patients with other products in clinical development, with products approved for use in the indications we are studying, or with off-

label use of products in the indications we are studying. We anticipate that we will face increased competition in the future as new companies enter markets we seek to address and scientific developments surrounding immunotherapy and other traditional cancer therapies continue to accelerate.

Our subsidiary company, AgenTus Therapeutics, is advancing invariant natural killer T cell (iNKT) therapy. We are aware of competitors advancing NKT therapies, including but not limited to, Kuur Therapeutics and BrightPath Biotherapeutics.

Several other vaccine adjuvants are in development or in use and could compete with QS-21 Stimulon for inclusion in vaccines. These adjuvants may include but are not limited to: (1) oligonucleotides, under development by Pfizer, Idera, and Dynavax, (2) MF59, under development by Novartis, (3) IC31, under development by Intercell (now part of Valneva), (4) MPL, under development by GSK, (5) Matrix-M™, under development by Novavax, (6) AS03, under development by GSK, and (7) TQL 1055, under development by Adjuvance Technologies. In the past, we have provided QS-21 Stimulon to other entities under materials transfer arrangements. In at least one instance, it is possible that this material was used without our permission to develop synthetic formulations and/or derivatives of QS-21. In addition, other companies and academic institutions are developing saponin adjuvants, including derivatives and synthetic formulations. These sources may be competitive to our ability to execute future partnering and licensing arrangements involving QS-21 Stimulon. The existence of products developed by these and other competitors, or other products of which we are not aware, or which other companies may develop in the future, may adversely affect the marketability of products developed or sold using QS-21 Stimulon.

We are also aware of a third party that manufactures pre-clinical material purporting to be comparable to QS-21 Stimulon. The claims being made by this third party may create marketplace confusion and have an adverse effect on the goodwill generated by us and our partners with respect to QS-21 Stimulon. We are also aware of other manufacturers of QS-21. Any diminution of this goodwill may have an adverse effect on our ability to commercialize future products, if any, incorporating this technology, either alone or with a third party.

Even if we obtain regulatory approval to market 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.

Even if our product candidates receive marketing approval, we, or others, may subsequently discover that such product is less effective than previously believed or causes undesirable side effects that were not previously identified and our ability to market such product will be compromised.

Clinical trials of our product candidates are conducted in carefully defined subsets of patients who have agreed to enter into such clinical trials. Consequently, it is possible that our clinical trials may indicate an apparent positive effect of a product candidate that is greater than the actual positive effect, if any, or alternatively fail to identify undesirable side effects. If one or more of our product candidates receives regulatory approval, and we, or others, later discover that they are less effective than previously believed, or cause undesirable side effects, a number of potentially significant negative consequences could result, including:

- withdrawal or limitation by regulatory authorities of approvals of such product;
- seizure of the product by regulatory authorities;
- recall of the product;
- restrictions on the marketing of the product or the manufacturing process for any component thereof;
- requirement by regulatory authorities of additional warnings on the label, such as a "black box" warning or contraindication;
- requirement that we implement a risk evaluation and mitigation strategy or create a medication guide outlining the risks of such side effects for distribution to patients;
- commitment to expensive additional safety studies prior to approval or post-marketing studies required by regulatory authorities of such product;
- the product may become less competitive;
- initiation of regulatory investigations and government enforcement actions;
- initiation of legal action against us to hold us liable for harm caused to patients; and
- harm to our reputation and resulting harm to physician or patient acceptance of our products.

Any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if

approved, and could significantly harm our business, financial condition and results of operations.

Even if our product candidates receive marketing approval, such products may fail to achieve the degree of market acceptance by physicians, patients, third- party payors and others in the medical community necessary for commercial success.

If balstilimab and zalifrelimab or any other future product candidates receive marketing approval, whether as single agents or in combination with other therapies, they may nonetheless fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. For example, current approved immunotherapies, and other cancer treatments like chemotherapy and radiation therapy, are well established in the medical community, and doctors could continue to rely on these therapies. If balstilimab and zalifrelimab or any other future product candidates do not achieve an adequate level of acceptance, we may not generate significant product revenues and we may not become profitable. The degree of market acceptance of balstilimab and zalifrelimab or any future products, if approved for commercial sale, will depend on a number of factors, including:

- efficacy and potential advantages compared to alternative treatments;
- the ability to offer our products, if approved, for sale at competitive prices;
- convenience and ease of administration compared to alternative treatments;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the strength of marketing and distribution support;
- sufficient third-party coverage or reimbursement, including of combination therapies;
- adoption of a companion diagnostic and/or complementary diagnostic; and
- the prevalence and severity of any side effects.

Even if we are able to commercialize any product candidates, such products may not receive coverage or may become subject to unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives, all of which would harm our business.

The legislation and regulations that govern marketing approvals, pricing and reimbursement for new drug products vary widely from country to country. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or drug licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. In the United States, approval and reimbursement decisions are not linked directly, but there is increasing scrutiny from the Congress and regulatory authorities of the pricing of pharmaceutical products. As a result, we might obtain marketing approval for a product candidate in a particular country, but then be subject to price regulations that delay our commercial launch of the product candidate, possibly for lengthy time periods, and negatively impact the revenues we are able to generate from the sale of the product candidate in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if our product candidates obtain marketing approval.

Significant uncertainty exists as to the coverage and reimbursement status of our product candidates for which we seek regulatory approval. Our ability to commercialize any drugs successfully will depend, in part, on the extent to which reimbursement for these drugs and related treatments will be available from government health administration authorities, private health insurers and other organizations. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. Obtaining and maintaining adequate reimbursement for our product candidates, if approved, may be difficult. Moreover, 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. Further, one payor’s determination to provide coverage for a product does not assure that other payors will also provide coverage and reimbursement for our products, if they are approved, by third-party payors.

A primary trend in the healthcare industry in the United States and elsewhere is cost containment. Government authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Third-party payors may also seek, with respect to an approved

product, additional clinical evidence that goes beyond the data required to obtain marketing approval. They may require such evidence to demonstrate clinical benefits and value in specific patient populations or they may call for costly pharmaceutical studies to justify coverage and reimbursement or the level of reimbursement relative to other therapies before covering our products. Accordingly, we cannot be sure that reimbursement will be available for any drug that we commercialize and, if reimbursement is available, we cannot be sure as to the level of reimbursement and whether it will be adequate. Coverage and reimbursement may impact the demand for, or the price of, any product candidate for which we obtain marketing approval. If reimbursement is not available or is available only at limited levels, we may not be able to successfully commercialize any product candidate for which we obtain marketing approval.

There may be significant delays in obtaining reimbursement for newly-approved drugs, and coverage may be more limited than the indications for which the drug is approved by the FDA or comparable regulatory authorities outside of the United States. Moreover, eligibility for reimbursement does not imply that any drug will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution. Interim reimbursement levels for new drugs, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. Our inability to promptly obtain coverage and profitable payment rates from both government-funded and private payors for any approved drugs that we develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize drugs and our overall financial condition.

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, and our estimates of the prevalence of our target patient populations may be inaccurate.

Cancer and autoimmune therapies are sometimes characterized as first-line, second-line, third-line and even fourth-line, and the FDA often approves new therapies initially only for last-line use. Initial approvals for new cancer and autoimmune therapies are often restricted to later lines of therapy, and in the case of cancer specifically, for patients with advanced or metastatic disease. Indeed, the BLA that we have initiated the rolling submission of, and the BLA that we intend to file in the future, for balstilimab and zalifrelimab target second-line cervical cancer. This will limit the number of cervical cancer patients who may be eligible to use balstilimab and zalifrelimab, if approved.

Our projections of both the number of people who have the diseases we are targeting, as well as the subset of people with these diseases in a position to receive our therapies, if approved, are based on our beliefs and estimates. These estimates have been derived from a variety of sources, including scientific literature, input from key opinion leaders, patient foundations, or secondary market research databases, and may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of these diseases. 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 product candidates targeting cervical cancer to target the smaller patient populations that suffer from the respective diseases we seek to treat. Furthermore, regulators and payors may further narrow the therapy-accessible treatment population. Even if we obtain significant market share for our product candidates, because certain of the potential target populations are small, we may never achieve profitability without obtaining regulatory approval for additional indications.

We are currently building marketing, sales and commercial compliance functions, and as a company, we have no experience in marketing, selling and distributing products or performing commercial compliance. If we are unable to establish such capabilities or enter into agreements with third parties to perform such functions, we may not be able to generate product revenue.

We currently have a small number of employees that are tasked with building our marketing, sales and commercial compliance functions, and we currently have limited sales, marketing, distribution or commercial compliance capabilities and have no experience as a company performing such tasks. Developing an in-house marketing team, sales force and commercial compliance function will require significant capital expenditures, management resources and time and may ultimately prove to be unsuccessful. In the event we develop and deploy these capabilities, we will have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train and retain personnel qualified to perform these tasks. If we fail to market and sell our approved products in compliance with applicable laws and regulations, we may be subject to fines or other penalties.

In addition to establishing internal sales, marketing and distribution capabilities, we may 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 in the United States or overseas.

Risks Related to Manufacturing and Supply

Our product candidates are uniquely manufactured. If we or any of our third-party manufacturers encounter difficulties in manufacturing our product candidates, our ability to provide supply of our product candidates for clinical trials or our products for patients, if approved, could be delayed or stopped, or we may be unable to maintain a commercially viable cost structure.

The manufacturing process used to produce certain of our product candidates is complex and novel and has not yet been validated for commercial production. As a result of these complexities, the cost to manufacture certain of our product candidates is potentially higher than traditional antibodies and the manufacturing process is less reliable and is more difficult to reproduce. Furthermore, our manufacturing process for certain of our product candidates has not been scaled up to commercial production. The actual cost to manufacture and process certain of our product candidates could be greater than we expect and could materially and adversely affect the commercial viability of such product candidates.

Our manufacturing process may be susceptible to logistical issues associated with the collection of materials sourced from various suppliers as well as shipment of the final product to clinical centers, manufacturing issues associated with interruptions in the manufacturing process, contamination, equipment or reagent failure, improper installation or operation of equipment, vendor or operator error, inconsistency in production batches, and variability in product characteristics. Even minor deviations from normal manufacturing processes could result in reduced production yields, lot failures, product defects, product recalls, product liability claims and other supply disruptions. If microbial, viral, or other contaminations are discovered in our product candidates or in our manufacturing facilities in which our product candidates are made, production at such manufacturing facilities may be interrupted for an extended period of time to investigate and remedy the contamination. Further, as we transition from late-stage clinical trials toward approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods, are altered along the way in an effort to optimize processes and results. Such changes carry the risk that they will not achieve these intended objectives, and any of these changes could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials.

Although we continue to optimize our manufacturing process for our antibody product candidates, doing so is a difficult and uncertain task, and there are risks associated with scaling to the level required for commercialization, including, among others, cost overruns, potential problems with process scale-up, process reproducibility, stability issues, lot consistency, and timely availability of reagents and/or raw materials. We ultimately may not be successful in transferring our in-house clinical scale production system to any commercial scale manufacturing facilities that we establish ourselves, or establish at a contract manufacturing organization (“CMO”). If we are unable to adequately validate or scale-up the manufacturing process for our product candidates with our contracted CMO, we will need to transfer to another manufacturer and complete the manufacturing validation process, which can be lengthy. If we are able to adequately validate and scale-up the manufacturing process for our product candidates with a contract manufacturer, we will still need to negotiate with such contract manufacturer an agreement for commercial supply and it is not certain we will be able to come to agreement on terms acceptable to us for all product candidates. As a result, we may ultimately be unable to reduce the cost of goods for our product candidates to levels that will allow for an attractive return on investment if and when those product candidates are commercialized.

In November 2020, we announced a new long-term lease in Emeryville, CA for cGMP manufacturing space, which we intend to use for certain of our own commercial manufacturing requirements. We have never owned or operated a commercial manufacturing building, and there is no guarantee that we will be successful doing so.

The manufacturing process for any products that we may develop is subject to the FDA and foreign regulatory authority approval process. If we or our CMOs are unable to reliably produce products to specifications acceptable to the FDA or other regulatory authorities, we may not obtain or maintain the approvals we need to commercialize such products. Even if we obtain regulatory approval for any of our product candidates, there is no assurance that either we or our CMOs will be able to manufacture the approved product to specifications acceptable to the FDA or other regulatory authorities, to produce it in sufficient quantities to meet the requirements for the potential launch of the product, or to meet potential future demand. Any of these challenges could delay completion of clinical trials, require bridging clinical trials or the repetition of one or more clinical trials, increase clinical trial costs, delay approval of our product candidates, impair commercialization efforts, increase our cost of goods, and have an adverse effect on our business, financial condition, results of operations and growth prospects. Our future success depends on our ability to manufacture

our products on a timely basis with acceptable manufacturing costs, while at the same time maintaining good quality control and complying with applicable regulatory requirements, and an inability to do so could have a material adverse effect on our business, financial condition, and results of operations. In addition, we could incur higher manufacturing costs if manufacturing processes or standards change, and we could need to replace, modify, design, or build and install equipment, all of which would require additional capital expenditures. Specifically, because our product candidates may have a higher cost of goods than conventional therapies, the risk that coverage and reimbursement rates may be inadequate for us to achieve profitability may be greater.

We own and operate our own clinical scale manufacturing facility and infrastructure in addition to or in lieu of relying on CMOs for the manufacture of clinical supplies of our product candidates. This is costly and time-consuming.

We own and operate the manufacturing pilot plant that supplies our antibody drug substance requirements for clinical proof-of-concept studies. Any performance failure on the part of our existing facility could delay clinical development or marketing approval of our antibody programs.

To date, we have manufactured our Prophage vaccines in our Lexington, MA facility. Manufacturing of the Prophage vaccines is complex, and various factors could cause delays or an inability to supply the vaccine. Deviations in the processes controlling manufacture or deficiencies in size or quality of source material could result in production failures. Specific vulnerabilities in the process may exist in tumor types in which quality or quantity of tissue is limited. In addition, regulatory bodies may require us to make our manufacturing facility a single product facility. In such an instance, we may elect to manufacture another product candidate in our current facility and would no longer have the ability to manufacture Prophage vaccines as well.

We have given our corporate QS-21 Stimulon licensee, GSK, manufacturing rights for QS-21 Stimulon for use in their product programs. We have retained the right to manufacture QS-21 for ourselves and third parties, although no other such programs are anticipated to bring us substantial revenues in the near future, if ever. Although we have the right to secure certain quantities of QS-21 from GSK and we have some internal supply in-house, we currently do not have an alternative long-term supply partner for this adjuvant. In January 2019, we announced that the Bill & Melinda Gates Foundation awarded us a grant to develop an alternative, plant cell culture-based manufacturing process with the goal of ensuring the continuous future supply of QS-21 Stimulon adjuvant. While we are pursuing this in partnership with Phyton Biotech, there is no guarantee that we will be successful in these development efforts.

We also may encounter problems hiring and retaining the experienced scientific, quality-control and manufacturing personnel needed to operate our manufacturing processes, which could result in delays in production or difficulties in maintaining compliance with applicable regulatory requirements.

Any problems in our manufacturing process or facilities, or that of our licensees and suppliers, could make us a less attractive collaborator for potential partners, including larger pharmaceutical companies and academic research institutions, which could limit our access to additional attractive development programs.

The FDA, the EMA and other foreign regulatory authorities may require us to submit samples of any lot of any approved product together with the protocols showing the results of applicable tests at any time. Under some circumstances, the FDA, the EMA or other foreign regulatory authorities may require that we not distribute a lot until the relevant agency authorizes its release. Slight deviations in the manufacturing process, including those affecting quality attributes and stability, may result in unacceptable changes in the product that could result in lot failures or product recalls. Lot failures or product recalls could cause us to delay product launches or clinical trials, which could be costly to us and otherwise harm our business, financial condition, results of operations and prospects. Problems in our manufacturing process could restrict our ability to meet market demand for our products.

We are dependent on suppliers for some of our components and materials used to manufacture our product candidates.

We currently depend on suppliers for some of the components necessary for our product candidates. We cannot be sure that these suppliers will remain in business, that they will be able to meet our supply needs, 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. There are, in general, relatively few alternative sources of supply for these components. These suppliers may be unable or unwilling to meet our future demands for our clinical trials or commercial sale. Establishing additional or replacement suppliers for these components could take a substantial amount of time and it may be difficult to establish replacement suppliers who meet regulatory requirements. Any disruption in supply from a supplier or manufacturing location could lead to supply delays or interruptions which would damage our

business, financial condition, results of operations and prospects. If we are able to find a replacement supplier, the replacement supplier would need to be qualified and may require additional regulatory authority approval, which could result in further delay. While we seek to maintain adequate inventory of the materials used to manufacture our products, any interruption or delay in the supply of materials, or our inability to obtain materials from alternate sources at acceptable prices in a timely manner, could impair our ability to meet the demand of our customers and cause them to cancel orders. In addition, as part of the FDA's approval of our product candidates, we will also require FDA approval of the individual components of our process, which include the manufacturing processes and facilities of our suppliers. Our reliance on these suppliers subjects us to a number of risks that could harm our business, and financial condition, including, among other things: interruption of product candidate or commercial supply resulting from modifications to or discontinuation of a supplier's operations; delays in product shipments resulting from uncorrected defects, reliability issues, or a supplier's variation in a component; a lack of long-term supply arrangements for key components with our suppliers; inability to obtain adequate supply in a timely manner, or to obtain adequate supply on commercially reasonable terms; difficulty and cost associated with locating and qualifying alternative suppliers for our components and precursor cells in a timely manner; production delays related to the evaluation and testing of products from alternative suppliers, and corresponding regulatory qualifications; delay in delivery due to our suppliers prioritizing other customer orders over ours; and fluctuation in delivery by our suppliers due to changes in demand from us or their other customers. If any of these risks materialize, our manufacturing costs could significantly increase and our ability to meet clinical and commercial demand for our products could be impacted.

We rely on third parties for the manufacture of clinical supplies of certain of our product candidates and expect to rely on third parties for commercial supplies of any approved product candidates. This reliance on third parties increases the risk that we will not have sufficient quantities of our drug candidates or drugs or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.

We expect to rely on third-party manufacturers for the manufacture of commercial supplies of our drug candidates. At present, we do not have long-term supply agreements with all of the vendors needed to produce our product candidates for commercial sale and we may be unable to establish such agreements with third-party manufacturers or do so on acceptable terms.

The agreements that we do have in place with our third-party manufacturers obligate us to make significant non-refundable deposits to reserve manufacturing slots prior to the receipt of marketing approval for our product candidates. Additionally, if our product candidates are approved, we will be required to make minimum purchases and will have limited ability to purchase product in excess of our forecasted needs. As a result, if product sales fall below our minimum purchase obligations, we will be obligated to purchase more product than we can successfully sell, and if product demand exceeds the amount that we can purchase from our manufacturers, we will have to forgo some product sales. Either of these events may materially harm our financial prospects. Finally, reliance on third-party manufacturers entails additional risks, including:

- reliance on the third party for regulatory compliance and quality assurance;
- the possible breach of the manufacturing agreement by the third party;
- the possible failure of the third party to manufacture our drug candidate according to our schedule, or at all, including if the third-party manufacturer gives greater priority to the supply of other drugs over our drug candidates, or otherwise does not satisfactorily perform according to the terms of the manufacturing agreement;
- equipment malfunctions, power outages, natural or man-made calamities or other general disruptions experienced by our third-party manufacturers to their respective operations and other general problems with a multi-step manufacturing process;
- the possible misappropriation or disclosure by the third party or others of our proprietary information, including our trade secrets and know-how; and
- the possible termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us.

The agreements that we have in place with our third-party suppliers and manufacturers significantly limit the liability of such suppliers and manufacturers for failing to supply or manufacture, as applicable, our product candidates pursuant to the terms of our agreements, or as required by applicable regulation or law. As a result, if we suffer losses due to our suppliers or manufacturers failure to perform, we will have limited remedies available against such suppliers and manufacturers and are unlikely to be able to recover such losses from them.

Third-party manufacturers may not be able to comply with cGMP regulations or similar regulatory requirements outside of the United States. Facilities used by our third-party manufacturers must be inspected by the FDA after we submit an BLA and before

potential approval of the drug candidate. Similar regulations apply to manufacturers of our drug candidates for use or sale in foreign countries. We will not control the manufacturing process and will be completely dependent on our third-party manufacturers for compliance with the applicable regulatory requirements for the manufacture of our drug candidates. If our manufacturers cannot successfully manufacture material that conforms to the strict regulatory requirements of the FDA and any applicable foreign regulatory authority, they will not be able to secure the applicable approval for their manufacturing facilities. If these facilities are not approved for commercial manufacture, we may need to find alternative manufacturing facilities, which could result in delays in obtaining approval for the applicable drug candidate as alternative qualified manufacturing facilities may not be available on a timely basis or at all. In addition, our manufacturers are subject to ongoing periodic unannounced inspections by the FDA and corresponding state and foreign agencies for compliance with cGMPs and similar regulatory requirements. Failure by any of our manufacturers to comply with applicable cGMPs or other regulatory requirements could result in sanctions being imposed on us or the contract manufacturer, including fines, injunctions, civil penalties, delays, suspensions or withdrawals of approvals, operating restrictions, interruptions in supply and criminal prosecutions, any of which could significantly and adversely affect supplies of our drug candidates and have a material adverse impact on our business, financial condition and results of operations. Any drugs that we may develop may compete with other drug candidates and drugs for access to manufacturing facilities. There are a limited number of manufacturers that operate under cGMP regulations and that might be capable of manufacturing for us.

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

Risks Related to Our Reliance on Third Parties

We are dependent upon our collaborations with Gilead, Incyte and Betta Pharmaceuticals Co., Ltd. ("Betta Pharmaceuticals") to further develop and commercialize certain of our antibody programs. If we or Gilead, Incyte or Betta Pharmaceuticals fail to perform as expected, the potential for us to generate future revenues under such collaborations could be significantly reduced, the development and/or commercialization of these antibodies may be terminated or substantially delayed, and our business could be adversely affected.

In December 2018, we entered into a series of agreements with Gilead to collaborate on the development and commercialization of up to five novel I-O therapies. Pursuant to the collaboration agreements, Gilead received (i) worldwide exclusive rights to AGEN1423 (now GS-1423), a bispecific antibody, (ii) the exclusive option to license exclusively AGEN1223, a bispecific antibody, and AGEN2373, a monospecific antibody, and (iii) the right of first negotiation for two additional, undisclosed programs. Gilead had the exclusive right to develop and commercialize GS-1423, and we were eligible to receive potential development and commercial milestones of up to $552.5 million in the aggregate. In November 2020, Gilead elected to return GS-1423 to us and voluntarily terminated the license agreement effective as of February 4, 2021. The option agreements remain in place, and we are responsible for developing each program up to the option decision point, at which time Gilead may acquire exclusive rights to each program on option exercise. During the option period, we are eligible to receive milestones of up to $30.0 million in the aggregate. If Gilead exercises an option, it would be required to pay an upfront option exercise fee of $50.0 million for each option that is exercised. Following any option exercise, we would be eligible to receive additional development and commercial milestones of up to $520.0 million in the aggregate for each such option program, as well as tiered royalty payments on aggregate net sales ranging from the high single digit to mid-teen percent, subject to certain reductions under certain circumstances. For either, but not both, of the option programs, we will have the right to opt-in to share Gilead's development and commercialization costs in the United State for such option program in exchange for a profit (loss) share on a 50:50 basis and revised milestone payments. There is no guarantee that we will be able to successfully advance the option programs to the option decision point, and, even if we do, there is no guarantee that Gilead will exercise its option for either program. If Gilead does not exercise its option for either of the option programs, there is no guarantee that we will be able to advance any such program ourselves or with another partner.

In February 2017, we amended the terms of our collaboration agreement with Incyte to, among other things, convert the GITR and OX40 programs from profit-share programs, where we and Incyte shared all costs and profits on a 50:50 basis, to royalty-bearing programs, where Incyte funds 100% of the costs and we are eligible for potential milestones and royalties. In addition, the profit-share programs relating to TIGIT and one undisclosed target were removed from the collaboration, with TIGIT reverting to Agenus and the undisclosed target reverting to Incyte, each with a potential 15% royalty to the other party on any global net sales. The remaining three royalty-bearing programs in the collaboration targeting TIM-3, LAG-3 and one undisclosed target remain unchanged, and there are no more profit-share programs under the collaboration. For each program in the collaboration, Incyte has exclusive rights and all decision-making authority for manufacturing, clinical development and commercialization. Accordingly, the timely and successful completion by Incyte of clinical development and commercialization activities will significantly affect the timing and amount of any royalties or milestones we may receive under the collaboration agreement. In addition, in March 2017 we transferred manufacturing

responsibilities to Incyte for antibodies under that collaboration. Any delays or weaknesses in the ability of Incyte to successfully manufacture could have an adverse impact on those programs. Incyte's activities will be influenced by, among other things, the efforts and allocation of resources by Incyte, which we cannot control. If Incyte does not perform in the manner we expect or fulfill its responsibilities in a timely manner, or at all, the clinical development, manufacturing, regulatory approval, and commercialization efforts related to antibodies under the collaboration could be delayed or terminated. There can be no assurance that any of the development, regulatory or sales milestones will be achieved, or that we will receive any future milestone or royalty payments under the collaboration agreement. In September 2018, we sold to XOMA a portion of the royalties and milestones we are entitled to receive from Incyte.

In addition, our collaboration with Incyte may be unsuccessful due to other factors, including, without limitation, the following:

- Incyte may terminate the agreement or any individual program for convenience upon 12 months' notice;
- Incyte has control over the development of assets in the collaboration;
- Incyte may change the focus of its development and commercialization efforts or prioritize other programs more highly and, accordingly, reduce the efforts and resources allocated to our collaboration;
- Incyte may choose not to develop and commercialize antibody products, if any, in all relevant markets or for one or more indications, if at all; and
- If Incyte is acquired during the term of our collaboration, the acquirer may have competing programs or different strategic priorities that could cause it to reduce its commitment to our collaboration.

If Incyte terminates our collaboration agreement, we may need to raise additional capital and may need to identify and come to agreement with another collaboration partner to advance certain of our antibody programs. Even if we are able to find another partner, this effort could cause delays in our timelines and/or additional expenses, which could adversely affect our business prospects and the future of our antibody product candidates under the collaboration.

In June 2020, we entered into a license and collaboration agreement with Betta Pharmaceuticals to collaborate on the development and commercialization of balstilimab and zalifrelimab in greater China. Pursuant to the license and collaboration agreement, Betta Pharmaceuticals received an exclusive license to develop, manufacture and commercialize zalifrelimab and balstilimab in all fields (other than intravesical delivery) in greater China. Under the agreement, Betta Pharmaceuticals is responsible for all of the development, regulatory approval, manufacturing and commercialization costs in greater China. As part of the collaboration, Betta Pharma made an upfront cash payment of $15.0 million and agreed to make up to $100.0 million in aggregate milestone payments plus tiered royalties on net sales of zalifrelimab and balstilimab. Royalties range from mid-single digit to low-twenties percent, subject to certain reductions under certain circumstances. Accordingly, the timely and successful completion by Betta Pharmaceuticals of development, regulatory approval, manufacturing and commercialization activities will significantly affect the timing and amount of any milestones or royalties we may receive from Betta Pharmaceuticals. Betta Pharmaceuticals' activities will be influenced by, among other things, the efforts and allocation of resources by Betta Pharmaceuticals, which we cannot control.

In addition, our collaboration with Betta Pharmaceuticals may be unsuccessful due to other factors, including, without limitation, that Betta Pharmaceuticals:

- may terminate any of the license and collaboration agreement for convenience upon 90 days' notice;
- has control over the development, regulatory approval, manufacturing and commercialization of balstilimab and zalifrelimab in greater China;
- may change the focus of its business efforts or prioritize other programs more highly and, accordingly, reduce the efforts and resources allocated to balstilimab and zalifrelimab; and
- may choose not to develop and commercialize balstilimab and zalifrelimab in all markets within greater China or for one or more indications, if at all.

Additionally, the US-China relationship has deteriorated in recent years and, further deterioration may impact the ability of Agenus and Betta Pharmaceuticals to successfully collaborate.

Failure to enter into and/or maintain additional significant licensing, distribution and/or collaboration agreements in a timely manner and on favorable terms to us may hinder or cause us to cease our efforts to develop and commercialize our product candidates, increase our development timelines, and/or increase our need to rely on partnering or financing mechanisms, such as sales of debt or equity securities, to fund our operations and continue our current and anticipated programs. Even if we enter into and maintain such agreements, they may not prove successful, and/or we may not receive significant payments from agreements.

Part of our strategy is to develop and commercialize many of our product candidates by continuing or entering into arrangements with academic, government, or corporate collaborators and licensees. Our success depends on our ability to negotiate such agreements on favorable terms and on the success of the other parties in performing research, pre-clinical and clinical testing, completing regulatory applications, and commercializing product candidates. Our research, development, and commercialization efforts with respect to antibody candidates from our technology platforms are, in part, contingent upon the participation of institutional and corporate collaborators. For example, in February 2015, we began a broad collaboration with Incyte to pursue the discovery and development of antibodies, and in December 2018 we entered into a partnership with Gilead relating to five of our antibody programs. Furthermore, we have a collaboration arrangement with Recepta for balstilimab and zalifrelimab, giving Recepta rights to certain South American countries and requiring us to agree upon development plans for these product candidates. Disagreements or the failure of either party to perform satisfactorily could have an adverse impact on these programs.

The Brain Tumor Trials Collaborative, through the NCI, is sponsoring a Phase 2 clinical trial of our Prophage vaccine candidate in combination with Merck's pembrolizumab in patients with glioma. When our licensees or third-party collaborators sponsor clinical trials using our product candidates, we cannot control the timing of enrollment, data readout, or quality of such trials or related activities.

Our ability to advance our antibody programs depends in part on such collaborations. In addition, from time to time we engage in efforts to enter into licensing, distribution and/or collaboration agreements with one or more pharmaceutical or biotechnology companies to assist us with development and/or commercialization of our other product candidates. Any licensing, distribution and/or collaborations agreements, we enter into, including those with Gilead and Incyte, may pose a number of risks, including the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply;
- collaborators may not perform their obligations as expected;
- collaborators may not pursue development and commercialization of any product candidates that achieve regulatory approval or may elect not to continue or renew development or commercialization programs or license arrangements based on clinical trial results, changes in the collaborators' strategic focus or available funding, or external factors, such as a strategic transaction that may divert resources or create competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our products and product candidates if the collaborators believe that the competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- product candidates discovered in collaboration with us may be viewed by our collaborators as competitive with their own product candidates or products, which may cause collaborators to cease to devote resources to the commercialization of our product candidates;
- collaborators may fail to comply with applicable regulatory requirements regarding the development, manufacture, distribution or marketing of a product candidate or product;
- collaborators with marketing and distribution rights to one or more of our product candidates that achieve regulatory approval may not commit sufficient resources to the marketing and distribution of such product or products;
- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation or the preferred course of development, might cause delays or terminations of the research, development or commercialization of product candidates, might lead to additional responsibilities for us with respect to product candidates, or might result in litigation or arbitration, any of which would be time-consuming and expensive;
- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential litigation;
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability;

- if a collaborator of ours is involved in a business combination, the collaborator might deemphasize or terminate the development or commercialization of any product candidate licensed to it by us; and
- collaborations may be terminated by the collaborator, and, if terminated, we could be required to raise additional capital to pursue further development or commercialization of the applicable product candidates.

If our current or future collaborations do not result in the successful discovery, development and commercialization of products or if one of our collaborators terminates its agreement with us, we may not receive any future research funding or milestone or royalty payments under the collaboration. If we do not receive the funding we expect under these agreements, our development of our technology and product candidates could be delayed and we may need additional resources to develop product candidates and our technology. All of the risks relating to product development, regulatory approval and commercialization described herein also apply to the activities of our therapeutic collaborators.

Additionally, if one of our collaborators, such as Gilead, Incyte or Recepta, terminates its agreement with us, we may find it more difficult to attract new collaborators and our perception in the business and financial communities could be adversely affected.

Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators. We face significant competition in seeking appropriate collaborators. Our ability to reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors.

If we are unable to reach agreements with suitable collaborators on a timely basis, on acceptable terms, or at all, we may have to curtail the development of a product candidate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional expertise and additional capital, which may not be available to us on acceptable terms, or at all. If we fail to enter into collaborations or do not have sufficient funds or expertise to undertake the necessary development and commercialization activities, we may not be able to further develop our product candidates, bring them to market and generate revenue from sales of drugs or continue to develop our technology, and our business may be materially and adversely affected.

We rely on third parties to conduct our clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines or comply with regulatory requirements, we may not be able to obtain regulatory approval of or commercialize any potential product candidates.

We depend upon third parties, including independent investigators, to conduct our clinical trials under agreements with universities, medical institutions, CROs, strategic partners and others. Such reliance obligates us to negotiate budgets and contracts with CROs and trial sites, which may result in delays to our development timelines and increased costs.

We rely heavily on third parties over the course of our clinical trials, and, as a result, have limited control over the clinical investigators and limited visibility into their day-to-day activities, including with respect to their compliance with the approved clinical protocol. Nevertheless, we are responsible for ensuring that each of our trials is conducted in accordance with the applicable protocol, legal and regulatory requirements 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 GCP requirements, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for product candidates in clinical development. Regulatory authorities enforce these GCP requirements through periodic inspections of trial sponsors, clinical investigators and trial sites. If we or any of these third parties fail to comply with applicable GCP requirements, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to suspend or terminate these trials or perform additional nonclinical studies or clinical trials before approving our marketing applications. We cannot be certain that, upon inspection, such regulatory authorities will determine that any of our clinical trials comply with the GCP requirements. In addition, our clinical trials must be conducted with biologic product produced under cGMP requirements and may require a large number of 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.

The persons engaged by third parties conducting our clinical trials are not our employees and, except for remedies that may be available to us under our agreements with such third parties, we cannot control whether or not such persons devote sufficient time and

resources to our ongoing pre-clinical and clinical programs. These third parties may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other product 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 these third-party CROs or others terminate, we may not be able to enter into arrangements with alternative CROs or other third parties or to do so on commercially reasonable terms. Switching or adding additional CROs involves additional cost and requires management time and focus. In addition, there is a natural transition period when a new CRO begins work. As a result, delays may occur, which can materially impact our ability to meet our desired clinical development timelines. Though we carefully manage our relationships with our CROs, there can be no assurance that we will not encounter similar challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects.

Risks Related to Government Regulations

The regulatory approval process for our product candidates in the United States, European Union and other jurisdictions is currently uncertain and will be lengthy, time-consuming and inherently unpredictable and we may experience significant delays in the clinical development and regulatory approval, if any, 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 in the United States and regulatory authorities in states and other countries. We are not permitted to market any biological product in the United States for commercial use until we receive a biologics license from the FDA. We have not previously submitted a BLA to the FDA, or similar marketing application to comparable foreign authorities, except for our application related to Prophage. A BLA must include extensive nonclinical and clinical data and supporting information to establish that the product candidate is safe, pure and potent for each desired indication. The BLA must also include significant information regarding the chemistry, manufacturing and controls for the product, and the manufacturing facilities must complete a successful pre-license inspection. We expect the novel nature of our product candidates to create further challenges in obtaining regulatory approval. Accordingly, the regulatory approval pathway for our product candidates may be uncertain, complex, expensive and lengthy, and we may never obtain regulatory approval for our product candidates.

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 approval. The opinion of the Advisory Committee, although not binding, may have a significant impact on our ability to obtain approval of any product candidates that we develop based on the completed clinical trials.

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

Although the regulatory framework for approving immunotherapy products is evolving, the general approach for FDA approval of a new biologic or drug has historically been to provide dispositive data from two well-controlled, Phase 3 clinical trials of the relevant biologic or drug in the relevant patient population. Phase 3 clinical trials typically involve hundreds of patients, have significant costs and take years to complete. We intend to utilize an accelerated approval approach for our product candidates given the limited alternatives for cancer treatments, but the FDA may not agree with our plans.

In addition, our clinical trial results may also not support approval of our product candidates. 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;
- 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 nonclinical studies or clinical trials;

- the data collected from clinical trials of our product candidates may be deemed by the FDA or comparable foreign regulatory authorities to be insufficient 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 may fail to approve or find deficiencies with the manufacturing processes and controls or facilities of third-party manufacturers with which we contract for clinical and commercial supplies or any facilities that we may own in the future; and
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner that could render our clinical data insufficient for approval.

The FDA, the EMA and other regulatory authorities may implement additional regulations or restrictions on the development and commercialization of our product candidates, which may be difficult to predict.

The FDA, the EMA and regulatory authorities in other countries have each expressed interest in further regulating biotechnology products, such as antibodies, vaccines, adjuvants and adoptive cell therapies. Agencies at both the federal and state level in the United States, as well as the U.S. Congressional committees and other governments or governing agencies, have also expressed interest in further regulating the biotechnology industry. Such action may delay or prevent commercialization of some or all of our product candidates. Adverse developments in clinical trials of antibodies, vaccines, adjuvants or adoptive cell therapies products conducted by others may cause the FDA or other oversight bodies to change the requirements for approval of any of our product candidates. Similarly, the EMA governs the development of antibodies, vaccines, adjuvants and adoptive cell therapies in the European Union and may issue new guidelines concerning the development and marketing authorization for such products and require that we comply with these new guidelines. These regulatory review agencies and committees and the new requirements or guidelines they promulgate may lengthen the regulatory review process, require us to perform additional studies or trials, 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. As we advance our product candidates, we will be required to consult with these regulatory agencies and comply with applicable requirements and guidelines. If we fail to do so, we may be required to delay or discontinue development of such product candidates. These additional processes may result in a review and approval process that is longer than we otherwise would have expected. Delays as a result of an increased or lengthier regulatory approval process or further restrictions on the development of our product candidates can be costly and could negatively impact our ability to complete clinical trials and commercialize our current and future product candidates in a timely manner, if at all.

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

We may seek a Breakthrough Therapy Designation for some of our product candidates. A breakthrough therapy is defined as a therapy that is intended, alone or in combination with one or more other therapies, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the therapy 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 therapies 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. Therapies designated as breakthrough therapies by the FDA may also be eligible for priority review and accelerated approval. 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 therapies considered for approval under conventional FDA 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 such product candidates no longer meet the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

We have received Fast Track Designation for investigation of balstilimab in combination with zalifrelimab for the treatment of patients with relapsed or refractory metastatic cervical cancer and balstilimab alone for the treatment of cervical cancer, and we intend to apply for such designation for our other product candidates in the future. If a therapy is intended for the treatment of a serious or life-threatening condition and the therapy demonstrates the potential to address unmet medical needs for this condition, the therapy sponsor may apply for Fast Track Designation. The FDA has broad discretion whether or not to grant this designation, so even if we believe a particular product candidate is eligible for this designation; we cannot assure our stockholers that the FDA would decide to grant it. We may not experience a faster development process, review or approval compared to conventional FDA procedures for the product candidate for which we have received, or may receive in the future, Fast Track Designation. The FDA may

withdraw Fast Track Designation if it believes that the designation is no longer supported by data from our clinical development program. Fast Track Designation alone does not guarantee qualification for the FDA's priority review procedures.

We may seek Regenerative Medicine Advanced Therapy ("RMAT") designation for some of our product candidates including our allogeneic cell therapies. In 2017, the FDA established the RMAT designation as part of its implementation of the 21st Century Cures Act to expedite review of any drug that meets the following criteria: it qualifies as a RMAT, which is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, with limited exceptions; it is intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition; and preliminary clinical evidence indicates that the drug has the potential to address unmet medical needs for such a disease or condition. Like Breakthrough Therapy Designation, RMAT designation provides potential benefits that include more frequent meetings with FDA to discuss the development plan for the product candidate, and eligibility for rolling review and priority review. Products granted RMAT designation may also be eligible for accelerated approval on the basis of a surrogate or intermediate endpoint reasonably likely to predict long-term clinical benefit, or reliance upon data obtained from a meaningful number of sites, including through expansion to additional sites. RMAT-designated products that receive accelerated approval may, as appropriate, fulfill their post-approval requirements through the submission of clinical evidence, clinical trials, patient registries, or other sources of real world evidence, such as electronic health records; through the collection of larger confirmatory data sets; or via post-approval monitoring of all patients treated with such therapy prior to approval of the therapy. There is no assurance that we will be able to obtain RMAT designation for any of our product candidates. RMAT designation does not change the FDA's standards for product approval, and there is no assurance that such designation will result in expedited review or approval or that the approved indication will not be narrower than the indication covered by the designation. Additionally, RMAT designation can be revoked if the criteria for eligibility cease to be met as clinical data emerges.

We may seek priority review designation for one or more of our other product candidates, but we might not receive such designation, and even if we do, such designation may not lead to a faster development or regulatory review or approval process.

If the FDA determines that a product candidate offers a treatment for a serious condition and, if approved, the product would provide a significant improvement in safety or effectiveness, the FDA may designate the product candidate for priority review. A priority review designation means that the goal for the FDA to review an application is six months, rather than the standard review period of ten months. We may request priority review for our product candidates. The FDA has broad discretion with respect to whether or not to grant priority review status to a product candidate, so even if we believe a particular product candidate is eligible for such designation or status, the FDA may decide not to grant it. Moreover, a priority review designation does not necessarily result in expedited development or regulatory review or approval process or necessarily confer any advantage with respect to approval compared to conventional FDA procedures. Receiving priority review from the FDA does not guarantee approval within the six-month review cycle or at all.

We may not be able to obtain or maintain orphan drug designations from the FDA for our current and future product candidates, as applicable.

Our strategy includes filing for orphan drug designation where available for our product candidates, but thus far, our applications for orphan drug designation with respect to balstilimab and zalifrelimab have been rejected.

Under the Orphan Drug Act, the FDA may grant orphan drug designation to a drug or biologic intended to treat a rare disease or condition, which is defined as one occurring in a patient population of fewer than 200,000 in the United States, or a patient population greater than 200,000 in the United States where there is no reasonable expectation that the cost of developing the drug or biologic will be recovered from sales in the United States. In the United States, orphan drug designation entitles a party to financial incentives, such as opportunities for grant funding toward clinical trial costs, tax advantages and user-fee waivers. In addition, if a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusivity, which means that the FDA may not approve any other applications, including a full new drug application, or NDA, or BLA, to market the same drug or biologic for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity or where the original manufacturer is unable to assure sufficient product quantity.

In addition, exclusive marketing rights in the United States may be limited if we seek approval for an indication broader than the orphan-designated indication or 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 orphan- designated disease or condition. Further, even if we obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs with different active moieties may receive and be approved for the same condition, and only the first applicant to receive approval will receive the benefits of marketing exclusivity. Even after an orphan-designated product is approved, the FDA can subsequently approve a later drug with the same active moiety for the same condition if the FDA concludes

that the later drug is clinically superior if it is shown to be safer, more effective or makes a major contribution to patient care. Orphan drug designation neither shortens the development time or regulatory review time of a drug, nor gives the drug any advantage in the regulatory review or approval process. In addition, while we may again seek orphan drug designation for our product candidates, we may never receive such designations.

Our relationships with healthcare providers and physicians and third-party payors will be subject to applicable anti- kickback, fraud and abuse and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings.

Healthcare providers, physicians and third-party payors in the United States and elsewhere play a primary role in the recommendation and prescription of pharmaceutical products. Arrangements with third-party payors and customers can expose pharmaceutical manufactures to broadly applicable fraud and abuse and other healthcare laws and regulations, including, without limitation, the federal Anti-Kickback Statute and the federal False Claims Act (the "FCA"), which may constrain the business or financial arrangements and relationships through which such companies sell, market and distribute pharmaceutical products. In particular, the promotion, sales and marketing of healthcare items and services, as well as certain business arrangements in the healthcare industry, are subject to extensive laws 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, structuring and commission(s), certain customer incentive programs and other business arrangements generally. Activities subject to these laws also involve the improper use of information obtained in the course of patient recruitment for clinical trials. The applicable federal, state and foreign healthcare laws and regulations laws that may affect our ability to operate include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits, among other things, knowingly and willfully soliciting, receiving, offering or paying any remuneration (including any kickback, bribe or rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for, either the referral of an individual, or the purchase, lease, order or recommendation of any good, facility, item or service for which payment may be made, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs. A person or entity can be found guilty of violating the statute without actual knowledge of the statute or specific intent to violate it. In addition, 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 FCA. The Anti-Kickback Statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on the 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;

- federal civil and criminal false claims laws and civil monetary penalty laws, including the FCA, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, false or fraudulent claims for payment to, or approval by, Medicare, Medicaid, or other federal healthcare programs, knowingly making, using or causing to be made or used a false record or statement material to a false or fraudulent claim or an obligation to pay or transmit money to the federal government, or knowingly concealing or knowingly and improperly avoiding, decreasing or concealing an obligation to pay money to the federal government. Manufacturers can be held liable under the FCA even when they do not submit claims directly to government payors if they are deemed to "cause" the submission of false or fraudulent claims. The FCA also permits a private individual acting as a "whistleblower" to bring actions on behalf of the federal government alleging violations of the FCA and to share in any monetary recovery;

- the federal anti-inducement law, prohibits, among other things, the offering or giving of remuneration, which includes, without limitation, any transfer of items or services for free or for less than fair market value (with limited exceptions), to a Medicare or Medicaid beneficiary that the person knows or should know is likely to influence the beneficiary's selection of a particular supplier of items or services reimbursable by a federal or state governmental program;

- 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, regardless of the payor (e.g., public or private) and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters. Similar to the federal Anti-Kickback Statute, a person or entity can be found guilty of violating HIPAA without actual knowledge of the statute or specific intent to violate it;

- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 ("HITECH"), and their respective implementing regulations, which impose, among other things, 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 without appropriate authorization. HITECH also created 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;

- the federal Physician Payment Sunshine Act, created under the Patient Protection and Affordable Care Act, and its implementing regulations, which require 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 ("HHS"), information related to payments or other "transfers of value" made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members;

- the U.S. Federal Food, Drug, and Cosmetic Act, which prohibits, among other things, the adulteration or misbranding of drugs, biologics and medical devices;

- federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers; and

- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers, and may be broader in scope than their federal equivalents; state and foreign 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 or otherwise restrict payments that may be made to healthcare providers; state and foreign 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; and state and foreign laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

The distribution of pharmaceutical products is subject to additional requirements and regulations, including extensive record-keeping, licensing, storage and security requirements intended to prevent the unauthorized sale of pharmaceutical products.

The scope and enforcement of each of these laws is uncertain and subject to rapid change in the current environment of healthcare reform, especially in light of the lack of applicable precedent and regulations. Federal and state enforcement bodies have recently increased their scrutiny of interactions between healthcare companies and healthcare providers, which has led to a number of investigations, prosecutions, convictions and settlements in the healthcare industry. Ensuring business arrangements comply with applicable healthcare laws, as well as responding to possible investigations by government authorities, can be time- and resource-consuming and can divert a company's financial resources and management's attention away from the business.

On January 31, 2019, the HHS and HHS Office of Inspector General proposed an amendment to one of the existing Anti- Kickback safe harbors (42 C.F.R. 1001.952(h)) which would prohibit certain pharmaceutical manufacturers from offering rebates to pharmacy benefit managers ("PBMs"), in the Medicare Part D and Medicaid managed care programs. The proposed amendment would remove protection for "discounts" from Anti-Kickback enforcement action and would include criminal and civil penalties for knowingly and willfully offering, paying, soliciting, or receiving remuneration to induce or reward the referral of business reimbursable under federal health care programs. At the same time, HHS also proposed to create a new safe harbor to protect point-of-sale discounts that drug manufacturers provide directly to patients, and adds another safe harbor to protect certain administrative fees paid by manufacturers to PBMs. If this proposal is adopted, in whole or in part, it could affect the pricing and reimbursement for any products for which we receive approval in the future.

The failure to comply with any of these laws or regulatory requirements subjects entities to possible legal or regulatory action. Depending on the circumstances, failure to meet applicable regulatory requirements can result in civil, criminal and administrative penalties, damages, fines, disgorgement, individual imprisonment, possible exclusion from participation in federal and

state funded healthcare programs, contractual damages and the curtailment or restricting of our operations, as well as additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws. Any action for violation of these laws, even if successfully defended, could cause a pharmaceutical manufacturer to incur significant legal expenses and divert management's attention from the operation of the business. Prohibitions or restrictions on sales or withdrawal of future marketed products could materially affect business in an adverse way.

We have adopted a code of business conduct and ethics, but it is not always possible to identify and deter employee misconduct, 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, 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.

Even if we receive regulatory approval of any product candidates or therapies, 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.

If any of our product candidates are approved, they will be subject to ongoing regulatory requirements for manufacturing, labeling, packaging, storage, advertising, promotion, sampling, record-keeping, export, import, conduct of post-marketing studies and submission of safety, efficacy and other post-market information, including both federal and state requirements in the United States and requirements of comparable foreign regulatory authorities. In addition, we will be subject to continued compliance with cGMP and GCP requirements for any clinical trials that we conduct post- approval.

Manufacturers and manufacturers' facilities are required to comply with extensive FDA, and comparable foreign regulatory authority requirements, including ensuring that quality control and manufacturing procedures conform to cGMP regulations. 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 inspection 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.

Any regulatory approvals that we receive for our product candidates may be subject to limitations on the approved indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase 4 clinical trials and surveillance to monitor the safety and efficacy of the product candidate. The FDA may also require a risk evaluation and mitigation strategies, or REMS, program as a condition of approval of our product candidates, which could entail requirements for long-term patient follow-up, 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, we will have to comply with requirements including submissions of safety and other post-marketing information and reports and registration.

The FDA may impose consent decrees or withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with our product candidates, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials 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 products, 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 strictly regulates marketing, labeling, advertising, and promotion of products that are placed on the market. Products may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses and a company that is found to have improperly promoted off-label uses may be subject to significant liability. The policies of the FDA and of other regulatory authorities may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. 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 which would adversely affect our business, prospects and ability to achieve or sustain profitability.

We also 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 administration may impact our business and industry. Namely, the current 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, the FDA's ability to engage in routine regulatory and 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 executive actions, including any executive 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 constraints on FDA's ability to engage in oversight and implementation activities in the normal course, our business may be negatively impacted.

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

The success of our product candidates, if approved, depends on the availability of adequate coverage and reimbursement from third-party payors. In addition, because our product candidates represent new approaches to the treatment of the diseases they target, we cannot be sure that coverage and reimbursement will be available for, or accurately estimate the potential revenue from, our product candidates or assure that coverage and reimbursement will be available for any product that we may develop.

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. Adequate coverage and reimbursement from governmental healthcare programs, such as Medicare and Medicaid, and commercial payors are critical to new product acceptance.

Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which drugs and treatments they will cover and the amount of reimbursement. Coverage and reimbursement by a third-party payor may depend upon a number of factors, including 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.

In the United States, no uniform policy of coverage and reimbursement for products exists among third-party payors. As a result, obtaining coverage and reimbursement approval 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 each payor supporting scientific, clinical and cost- effectiveness data for the use of our products on a payor-by-payor basis, with no assurance that coverage and adequate reimbursement will be obtained. Even if we obtain coverage for a given product, the resulting reimbursement payment rates might not be adequate for us to achieve or sustain profitability or may require co-payments that patients find unacceptably high. Further, even if one payor provides coverage for a given product, other payors may not provide coverage for that product. Additionally, third-party payors may not cover, or provide adequate reimbursement for, long-term follow-up evaluations required following the use of product candidates. 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. Because our product candidates may have a higher cost of goods than conventional therapies, and may require long-term follow-up evaluations, the risk that coverage and reimbursement rates may be inadequate for us to achieve profitability may be greater. There is significant uncertainty related to insurance coverage and reimbursement of newly approved products. It is difficult to predict at this time what third-party payors will decide with respect to the coverage and reimbursement for our product candidates.

Payment methodologies may be subject to changes in healthcare legislation and regulatory initiatives. For example, the Middle Class Tax Relief and Job Creation Act of 2012 required that the Centers for Medicare & Medicaid Services, the agency responsible for administering the Medicare program ("CMS") reduce the Medicare clinical laboratory fee schedule by 2% in 2013,

which served as a base for 2014 and subsequent years. In addition, effective January 1, 2014, CMS also began bundling the Medicare payments for certain laboratory tests ordered while a patient received services in a hospital outpatient setting. Additional state and federal healthcare reform measures are expected to be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in reduced demand for certain pharmaceutical products or additional pricing pressures.

Moreover, increasing efforts by governmental and third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products and, as a result, they may not cover or provide adequate payment for our product candidates. 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 and state 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. For example, in October 2017, California became the first state to pass legislation requiring pharmaceutical manufacturers to announce planned drug price increases. While this legislation does not directly affect drug prices, it puts further pressure on pharmaceutical manufacturers in setting prices. At least one state, Oregon, has recently passed a similar law, requiring pharmaceutical manufacturers to disclose cost components, and other states are likely to follow. Additionally, the Trump administration recently released a “Blueprint”, or plan, to reduce the cost of drugs. The Trump administrations’ Blueprint contains certain measures that the U.S. Department of Health and Human Services is already working to implement. At the state level, legislatures are increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. We expect to experience pricing pressures in connection with the sale of any of our product candidates due to the trend toward managed healthcare, the increasing influence of health maintenance organizations, cost containment initiatives and additional legislative changes.

Ongoing healthcare legislative and regulatory reform measures may have a material adverse effect on our business and results of operations.

Changes in regulations, statutes or the interpretation of existing regulations could impact our business in the future by requiring, for example: (i) changes to our manufacturing arrangements; (ii) additions or modifications to product labeling; (iii) the recall or discontinuation of our products; or (iv) additional record-keeping requirements. If any such changes were to be imposed, they could adversely affect the operation of our business.

In the United States, there have been and continue to be a number of legislative initiatives to contain healthcare costs. For example, in March 2010, the Patient Protection and Affordable Care Act (“ACA”), was passed, which substantially changes the way healthcare is financed by both governmental and private insurers, and significantly impacts the U.S. pharmaceutical industry. The ACA, among other things, subjects biological products to potential competition by lower-cost biosimilars, addresses 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, increases the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program and extends the rebate program to individuals enrolled in Medicaid managed care organizations, establishes annual fees and taxes on manufacturers of certain branded prescription drugs, and creates a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer’s outpatient drugs to be covered under Medicare Part D.

Since the passage of the ACA, there have been ongoing federal legislative and administrative efforts, as well as judicial challenges, seeking to repeal, modify or invalidate some or all of the provisions of the ACA. For instance, President Trump signed two Executive Orders designed to delay the implementation of certain provisions of the ACA or otherwise circumvent some of the requirements for health insurance mandated by the ACA and on June 14, 2018, U.S. Court of Appeals for the Federal Circuit ruled that the federal government was not required to pay more than $12 billion in ACA risk corridor payments to third-party payors who argued were owed to them. The effects of this gap in reimbursement on third-party payors, the viability of the ACA marketplace, providers, and potentially our business, are not yet known. While the Biden Administration is likely to support and potentially expand the ACA and resist legal challenges to it, it is unclear exactly how the Biden Administration will structure its priorities and any change in regulation or regulatory approach, has the potential to negatively impact our business.

Moreover, on May 30, 2018, the Right to Try Act, was signed into law. The law, among other things, provides a federal framework for certain patients to access certain investigational new drug products that have completed a Phase I clinical trial and that are undergoing investigation for FDA approval. Under certain circumstances, eligible patients can seek treatment without enrolling in clinical trials and without obtaining FDA permission under the FDA expanded access program. There is no obligation for a drug

manufacturer to make its drug products available to eligible patients as a result of the Right to Try Act, but the manufacturer must develop an internal policy and respond to patient requests according to that policy. We expect that additional foreign, federal and state healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in limited coverage and reimbursement and reduced demand for our products, once approved, or additional pricing pressures.

These laws, and future state and federal healthcare reform measures may be adopted in the future, any of which may result in additional reductions in Medicare and other healthcare funding and otherwise affect the prices we may obtain for any of our product candidates for which we may obtain regulatory approval or the frequency with which any such product candidate is prescribed or used.

European Union drug marketing and reimbursement regulations may materially affect our ability to market and receive coverage for our products in the European member states.

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 the European Union, the pricing of pharmaceutical products is subject to governmental control and other market regulations which could put pressure on the pricing and usage of our product candidates. In these countries, pricing negotiations with governmental authorities can take considerable time after obtaining marketing approval of a product candidate. In addition, market acceptance and sales of our product candidates will depend significantly on the availability of adequate coverage and reimbursement from third-party payors for our product candidates and may be affected by existing and future healthcare reform measures.

Much like the Anti-Kickback Statute prohibition in the United States, the provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order or use of medicinal products is also prohibited in the European Union. The provision of benefits or advantages to physicians is governed by the national anti-bribery laws of European Union Member States. Infringement of these laws could result in substantial fines and imprisonment.

Payments made to physicians in certain European Union Member States must be publicly disclosed. Moreover, agreements with physicians often must be the subject of prior notification and approval by the physician’s employer, his or her competent professional organization and/or the regulatory authorities of the individual European Union Member States. These requirements are provided in the national laws, industry codes or professional codes of conduct, applicable in the European Union Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

In addition, in most foreign countries, including the European Economic Area, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing and reimbursement vary widely from country to country. For example, the European Union provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. Reference pricing used by various European Union member states and parallel distribution, or arbitrage between low-priced and high-priced member states, can further reduce prices. A member state may approve a specific price for the medicinal product, or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. In some countries, we may be required to conduct a clinical trial or other studies that compare the cost-effectiveness of any of our product candidates to other available therapies in order to obtain or maintain reimbursement or pricing approval. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any of our products. Historically, products launched in the European Union do not follow price structures of the United States and generally prices tend to be significantly lower. Publication of discounts by third-party payors or authorities may lead to further pressure on the prices or reimbursement levels within the country of publication and other countries. If pricing is set at unsatisfactory levels or if reimbursement of our products is unavailable or limited in scope or amount, our revenues from sales by us or our strategic partners and the potential profitability of any of our product candidates in those countries would be negatively affected.

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 health data in the European Union (“EU”), was previously governed by the provisions of the Data Protection Directive, which has been replaced by the General Data Protection Regulation 2016/679 (“GDPR”) as of May 2018.

The GDPR imposes a broad range of strict requirements on companies subject to the GDPR, such as us, including requirements relating to having legal bases for processing personal information relating to identifiable individuals and transferring such information outside the European Economic Area, ("EEA"), including to the United States, providing details to those individuals regarding the processing of their personal information, keeping personal information secure, having data processing agreements with third parties who process personal information, responding to individuals' requests to exercise their rights in respect of their personal information, reporting security breaches involving personal data to the competent national data protection authority and affected individuals, appointing data protection officers, conducting data protection impact assessments, and record-keeping. The GDPR substantially increases the penalties to which we could be subject in the event of any non-compliance, including fines of up to 10 million Euros or up to 2% of our total worldwide annual turnover for certain comparatively minor offenses, or up to 20 million Euros or up to 4% of our total worldwide annual turnover for more serious offenses. Given the new law, we face uncertainty as to the exact interpretation of the new requirements, and we may be unsuccessful in implementing all measures required by data protection authorities or courts in interpretation of the new law.

In particular, national laws of member states of the EU are in the process of being adapted to the requirements under the GDPR, thereby implementing national laws which may partially deviate from the GDPR and impose different obligations from country to country, so that we do not expect to operate in a uniform legal landscape in the EU. Also, in the field of handling genetic data, the GDPR specifically allows national laws to impose additional and more specific requirements or restrictions, and European laws have historically differed quite substantially in this field, leading to additional uncertainty.

With respect to our clinical trials in the EEA, we must also ensure that we maintain adequate safeguards to enable the transfer of personal data outside of the EEA, in particular to the United States in compliance with European data protection laws including the GDPR. We expect that we will continue to face uncertainty as to whether our efforts to comply with our obligations under European privacy laws will be sufficient. If we are investigated by a European data protection authority, we may face fines and other penalties. Any such investigation or charges by European data protection authorities could have a negative effect on our existing business and on our ability to attract and retain new clients or pharmaceutical partners. We may also experience hesitancy, reluctance, or refusal by European or multi-national clients or pharmaceutical partners to continue to use our products and solutions due to the potential risk exposure as a result of the current (and, in particular, future) data protection obligations imposed on them by certain data protection authorities in interpretation of current law, including the GDPR. Such clients or pharmaceutical partners may also view any alternative approaches to compliance as being too costly, too burdensome, too legally uncertain, or otherwise objectionable and therefore decide not to do business with us. Any of the foregoing could materially harm our business, prospects, financial condition and results of operations.

Laws and regulations governing any international operations may preclude us from developing, manufacturing and selling certain products outside of the United States and require us to develop and implement costly compliance programs.

Because we have operations outside of the United States, we must dedicate additional resources to comply with numerous laws and regulations in each jurisdiction in which we plan to operate. The FCPA prohibits any U.S. individual or business from paying, offering, 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 certain 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.

Compliance with the FCPA is expensive and difficult, particularly in countries in which corruption is a recognized problem. We, directly or through our CROs, are conducting clinical trials in countries that Transparency International has identified as "perceived as more corrupt", including, Brazil, Chile, Georgia, Russia and Ukraine. In addition, the FCPA presents particular challenges in the pharmaceutical industry, because, in many countries, hospitals are operated by the government, and doctors and other hospital employees are considered foreign officials. Certain payments to hospitals in connection with clinical trials and other work have been deemed to be improper payments to government officials and have led to FCPA enforcement actions.

Various laws, regulations and executive orders also restrict the use and dissemination outside of the United States, or the sharing with certain non-U.S. nationals, of information classified for national security purposes, as well as certain products and technical data relating to those products. If we expand our presence outside of the United States, it will require us to dedicate additional resources to comply with these laws, and these laws may preclude us from developing, manufacturing, or selling certain products and product candidates outside of the United States, which could limit our growth potential and increase our development costs.

The failure to comply with laws governing international business practices may result in substantial civil and criminal penalties and suspension or debarment from government contracting. The SEC also may suspend or bar issuers from trading securities on U.S. exchanges for violations of the FCPA's accounting provisions.

We are subject to certain U.S. and foreign anti-corruption, anti-money laundering, export control, sanctions, and other trade laws and regulations. We can face serious consequences for violations.

Among other matters, U.S. and foreign anti-corruption, anti-money laundering, export control, sanctions, and other trade laws and regulations, which are collectively referred to as Trade Laws, prohibit companies and their employees, agents, clinical research organizations, legal counsel, accountants, consultants, contractors, and other partners from authorizing, promising, offering, providing, soliciting, or receiving directly or indirectly, corrupt or improper payments or anything else of value to or from recipients in the public or private sector. Violations of Trade Laws can result in substantial criminal fines and civil penalties, imprisonment, the loss of trade privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We also expect our non-U.S. activities to increase in time. We plan to engage third parties for clinical trials and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals and we can be held liable for the corrupt or other illegal activities of our personnel, agents, or partners, even if we do not explicitly authorize or have prior knowledge of such activities.

Inadequate funding for the FDA and other government agencies could hinder their ability to hire and retain key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner or otherwise prevent those agencies from performing normal business functions on which the operation of our business may rely, which could negatively impact our business.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and accept the payment of user fees, statutory, regulatory, and policy changes and the impact of crises that hinder its operations, such as COVID-19. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of other government agencies on which our operations may rely, including those that fund research and development activities, is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, including most recently from December 22, 2018 to January 25, 2019, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical FDA and other government employees and stop critical activities. If a prolonged government shutdown occurs, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

If we do not comply with environmental laws and regulations, we may incur significant costs and potential disruption to our business.

We use or may use hazardous, infectious, and radioactive materials, and recombinant DNA in our operations, which have the potential of being harmful to human health and safety or the environment. We store these hazardous (flammable, corrosive, toxic), infectious, and radioactive materials, and various wastes resulting from their use, at our facilities pending use and ultimate disposal. We are subject to a variety of federal, state, and local laws and regulations governing use, generation, storage, handling, and disposal of these materials. We may incur significant costs complying with both current and future environmental health and safety laws and regulations. In particular, we are subject to regulation by the Occupational Safety and Health Administration, the Environmental Protection Agency, the Drug Enforcement Agency, the Department of Transportation, the Centers for Disease Control and Prevention, the National Institutes of Health, the International Air Transportation Association, and various state and local agencies. At any time, one or more of the aforementioned agencies could adopt regulations that may affect our operations. We are also subject to regulation under the Toxic Substances Control Act and the Resource Conservation Development programs.

Although we believe that our current procedures and programs for handling, storage, and disposal of these materials comply with federal, state, and local laws and regulations, we cannot eliminate the risk of accidents involving contamination from these materials. Although we have a workers' compensation liability policy, we could be held liable for resulting damages in the event of an accident or accidental release, and such damages could be substantially in excess of any available insurance coverage and could substantially disrupt our business.

If we or our employees, independent contractors, consultants, commercial partners and vendors fail to comply with laws or regulations, it could adversely impact our reputation, business and stock price.

We are exposed to the risk of employee fraud or other misconduct our employees, independent contractors, consultants, commercial partners and vendors. Misconduct by employees could include intentional and/or negligent failures to comply with FDA regulations, to provide accurate information to the FDA, to comply with manufacturing standards we have established, to comply with federal and state health care fraud and abuse, transparency, and/or data privacy laws and regulations (including the California Consumer Privacy Act) and security laws and regulations, to report financial information or data accurately or to disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, kickbacks, self-dealing and other abusive practices; to promote transparency; and to protect the privacy and security of patient data. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. If we obtain FDA approval of any of our product candidates and begin commercializing those products in the United States, our potential exposure under such laws will increase significantly, and our costs associated with compliance with such laws are also likely to increase. These laws may impact, among other things, our current activities with principal investigators and research patients, as well as proposed and future sales, marketing and education programs.

While we have adopted a corporate compliance program, we may not be able to protect against all potential issues of noncompliance. Efforts to ensure that our business complies with all applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations, or case law involving applicable laws and regulations.

Employee misconduct could also involve the improper use or disclosure of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. In addition, during the course of our operations, our directors, executives and employees may have access to material, nonpublic information regarding our business, our results of operations or potential transactions we are considering. We may not be able to prevent a director, executive or employee from trading in our common stock on the basis of, or while having access to, material, nonpublic information. If a director, executive or employee was to be investigated, or an action was to be brought against a director, executive or employee for insider trading, it could have a negative impact on our reputation and our stock price. Such a claim, with or without merit, could also result in substantial expenditures of time and money, and divert the attention of our management team.

Risks associated with doing business internationally could negatively affect our business.

We currently have research and development operations in the United Kingdom (“UK”) and clinical operations in eastern Europe, and we expect to pursue pathways to develop and commercialize our product candidates in both U.S. and ex-U.S. jurisdictions. Various risks associated with foreign operations may impact our success. Possible risks of foreign operations include fluctuations in the value of foreign and domestic currencies, requirements to comply with various jurisdictional requirements such as data privacy regulations, disruptions in the import, export, and transportation of patient tumors and our products or product candidates, the product and service needs of foreign customers, difficulties in building and managing foreign relationships, the performance of our licensees or collaborators, geopolitical instability, unexpected regulatory, economic, or political changes in foreign and domestic markets, including without limitation any resulting from the UK’s planned or actual withdrawal from the EU or our current political regime, and limitations on the flexibility of our operations and costs imposed by local labor laws.

The exit of the UK from the European Union may materially affect the regulatory regime that governs our handling of EU personal data and expose us to legal and business risks under European data privacy and protection law.

On January 31, 2020, the UK exited the EU, commonly known as Brexit. Pursuant to the Withdrawal Agreement that has been ratified by both the UK and EU, EU law, including GDPR will continue to apply in the UK until December 31, 2020. The Withdrawal Agreement provides that the UK and EU can elect to extend such transition period by up to two years.

Since January 1, 2021, any transfers of personal data to the United Kingdom are subject to the requirements of Chapter V of the GDPR and of the Law Enforcement Directive and absent an adequacy finding under GDPR, transfers of personal data from the EU to the UK, including to our facility in Cambridge, UK, would be illegal without adequate safeguards provided for under EC-approved mechanisms, such as current standard contractual clauses or, if approved in the future, an EU-UK privacy shield similar to the current framework in place between the EU and the United States. The extensive authority of UK intelligence and law enforcement agencies, including to conduct surveillance on personal data flows, could reduce the likelihood that the EC would give the UK an adequacy finding and reduce the likelihood that the EC would approve an EU-UK privacy shield. Accordingly, we may be exposed to legal risk for any of our EU-UK personal data transfers, including those that involve sensitive data such as patient and genetic data. Given the uncertainties surrounding the UK’s departure from the EU, it is difficult to precisely identify or quantify the risks described above.

Additionally, it is possible that, over time, the UK Data Protection Act could become less aligned with the GDPR, which could require us to implement different compliance measures for the UK and the European Union and result in potentially enhanced compliance obligations for EU personal data.

As a result, Brexit adds legal risk, uncertainty, complexity and cost to our handling of EU personal information and our privacy and data security compliance programs. If we do not successfully manage such risk, our prospects may be materially harmed.

Our ability to use net operating losses and research and development credits to offset future taxable income may be subject to certain limitations.

As of December 31, 2020, we had U.S. federal and state net operating loss, or NOL, carryforwards of $733.1 million and $237.0 million, respectively, which may be available to offset future taxable income. The federal NOLs include $596.4 million which expire at various dates through 2038 and $136.7 million which carryforward indefinitely. The state NOLs expire at various dates through 2038. As of December 31, 2020, we also had U.S. federal and state research and development tax credit carryforwards of $8.7 million and $6.7 million, respectively, which may be available to offset future tax liabilities and begin to expire in 2021. In addition, in general, under Sections 382 and 383 of the Code and corresponding provisions of state law, a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its pre-change net operating loss carryforwards or tax credits, or NOLs or credits, to offset future taxable income or taxes. For these purposes, an ownership change generally occurs where the aggregate stock ownership of one or more stockholders or groups of stockholders who owns at least 5% of a corporation's stock increases its ownership by more than 50 percentage points over its lowest ownership percentage within a specified testing period. Our existing NOLs or credits may be subject to limitations arising from previous ownership changes, including in connection with our recent private placements, IPO and other transactions. In addition, future changes in our stock ownership, many of which are outside of our control, could result in an ownership change under Sections 382 and 383 of the Code and our ability to utilize NOLs or credits may be impaired. Our NOLs or credits may also be impaired under state law. Accordingly, we may not be able to utilize a material portion of our NOLs or credits. Furthermore, our ability to utilize our NOLs or credits is conditioned upon our attaining profitability and generating U. S. federal and state taxable income. As described above under "Risk factors—Risks Related to Our Financial Position and Need for Additional Capital," we have incurred significant net losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future; and therefore, we do not know whether or when we will generate the U.S. federal or state taxable income necessary to utilize our NOLs or credits that are subject to limitation by Sections 382 and 383 of the Code. The reduction of the corporate tax rate under the TCJA caused a reduction in the economic benefit of our net operating loss carryforwards and other deferred tax assets available to us. Under the TCJA, net operating loss carryforwards generated after December 31, 2017 will not be subject to expiration.

Risks Related to Our Intellectual Property

If we are unable to obtain and enforce patent protection for our product candidates and related technology, our business could be materially harmed.

We rely upon a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to our product candidates and technology. Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to duplicate or surpass our technological achievements, eroding our competitive position in the market. Our patent applications may not result in issued patents, and, even if issued, the patents may be challenged and invalidated. Moreover, our patents and patent applications may not be sufficiently broad to prevent others from practicing our technologies or developing competing products. We also face the risk that others may independently develop similar or alternative technologies or may design around our proprietary property.

Issued patents may be challenged, narrowed, invalidated or circumvented. In addition, court decisions may introduce uncertainty in the enforceability or scope of patents owned by biotechnology companies. The legal systems of certain countries do not favor the aggressive enforcement of patents, and the laws of foreign countries may not allow us to protect our inventions with patents to the same extent as the laws of the United States. Because patent applications in the United States and many foreign jurisdictions are typically not published until 18 months after filing, or in some cases not at all, and because publications of discoveries in scientific literature lag behind actual discoveries, we cannot be certain that we were the first to make the inventions claimed in our issued patents or pending patent applications, or that we were the first to file for protection of the inventions set forth in our patents or patent applications. As a result, we may not be able to obtain or maintain protection for certain inventions. Therefore, the enforceability and scope of our patents in the United States and in foreign countries cannot be predicted with certainty and, as a result, any patents that we own, or license may not provide sufficient protection against competitors. We may not be able to obtain or maintain patent protection from our pending patent applications, from those we may file in the future, or from those we may license from third parties. Moreover, even if we are able to obtain patent protection, such patent protection may be of insufficient scope to achieve our business objectives.

Patent terms may be inadequate to protect our competitive position on our product candidates for an adequate amount of time. Patents have a limited lifespan. In the United States, the natural expiration of a patent is generally 20 years after its effective filing date. Various extensions may be available; however, the life of a patent, and the protection it affords, is limited. Without patent protection for our product candidates, we may be open to competition from biosimilar or generic versions of our product candidates. Furthermore, the product development timeline for biotechnology products is lengthy and it is possible that our issued patents covering our product candidates in the United States and other jurisdictions may expire prior to commercial launch. For example, if we encounter delays in our development efforts, including our clinical trials, the period of time during which we could market our product candidates under patent protection could be reduced.

Our strategy depends on our ability to identify and seek patent protection for our discoveries. This process is expensive and time consuming, and we and our current or future licensors or licensees may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner or in all jurisdictions where protection may be commercially advantageous. It is also possible that we or our current licensors or licensees, or any future licensors or licensees, may not identify patentable aspects of inventions made in the course of development and commercialization activities in time to obtain patent protection on them. Therefore, these and any of our patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. Defects of form in the preparation or filing of our patents or patent applications may exist, or may arise in the future, for example with respect to proper priority claims, inventorship, etc. If we or our current licensors or licensees, or any future licensors or licensees, fail to establish, maintain or protect such patents and other intellectual property rights, such rights may be reduced or eliminated. If our current licensors or licensees, or any future licensors or licensees, are not fully cooperative or disagree with us as to the prosecution, maintenance or enforcement of any patent rights, such patent rights could be compromised. If there are material defects in the form or preparation of our patents or patent applications, such patents or applications may be invalid and unenforceable. Despite our efforts to protect our proprietary rights, unauthorized parties may be able to obtain and use information that we regard as proprietary. The issuance of a patent does not ensure that it is valid or enforceable, so even if we obtain patents, they may not be valid or enforceable against third parties. In addition, the issuance of a patent does not give us the right to practice the patented invention. Third parties may have blocking patents that could prevent us from marketing our own patented product and practicing our own patented technology. Any of these outcomes could impair our ability to prevent competition from third parties, which may have an adverse impact on our business.

The patent landscapes in the fields of antibody, vaccine, adjuvant and adoptive cell therapy development, manufacture and commercialization are crowded. For example, we are aware of third-party patents directed to methods for identifying and producing therapeutic products such as antibodies, vaccines, adjuvants and adoptive cell therapies. We are also aware of third-party patents directed to products targeting numerous antigens for which we also seek to identify, develop, and commercialize products. For example, some patents claim products based on competitive binding with existing products, some claim products based on specifying sequence or other structural information, and some claim various methods of discovery, production, or use of such products.

These or other third-party patents could impact our freedom to operate in relation to our technology platforms, as well as in relation to development and commercialization of products identified by us as therapeutic candidates. As we discover and develop our candidates, we will continue to conduct analyses of these third-party patents to determine whether we believe we might infringe them, and if so, whether they would be likely to be deemed valid and enforceable if challenged. If we determine that a license for a given patent or family of patents is necessary or desirable, there can be no guarantee that a license would be available on favorable terms, or at all. Inability to obtain a license on favorable terms, should such a license be determined to be necessary or desirable, could, without limitation, result in increased costs to design around the third-party patents, delay product launch, or result in cancellation of the affected program or cessation of use of the affected technology.

Third parties may also seek to market biosimilar versions of any approved products. Alternatively, third parties may seek approval to market their own products similar to or otherwise competitive with our products. In these circumstances, we may need to defend and/or assert our patents, including by filing lawsuits alleging patent infringement. In any of these types of proceedings, a court or agency with jurisdiction may find our patents invalid and/or unenforceable. Even if we have valid and enforceable patents, these patents still may not provide protection against competing products or processes sufficient to achieve our business objectives.

Through our acquisitions of 4-AB, PhosImmune and certain assets of Celexion, we own, co-own, or have exclusive rights to a number of patents and patent applications directed to various methods and compositions, including methods for identifying therapeutic antibodies and product candidates arising out of such entities' technology platforms. In particular, we own patents and patent applications relating to our Retrocyte Display™ technology platform, a high throughput antibody expression platform for the identification of fully-human and humanized monoclonal antibodies. This patent family is projected to expire between 2029 and 2031. Through our acquisition of PhosImmune, we own, co-own, or have exclusive rights to patents and patent applications directed to various methods and compositions, including a patent directed to methods for identifying phosphorylated proteins using mass spectrometry. This patent is projected to expire in 2023. In addition, as we advance our research and development efforts with our institutional and corporate collaborators, we are seeking patent protection for newly identified therapeutic antibodies and product

candidates. We can provide no assurance that any of our patents, including the patents that we acquired or in-licensed in connection with our acquisitions of 4-AB, PhosImmune and certain assets of Celexion, will have commercial value, or that any of our existing or future patent applications, including the patent applications that we acquired or in-licensed in connection with our acquisitions of 4-AB, PhosImmune and certain assets of Celexion, will result in the issuance of valid and enforceable patents.

Our issued patents covering Prophage vaccine and methods of use thereof, alone or in combination with other agents, expired or will expire at various dates between 2015 and 2024. In particular, our issued U.S. patents covering Prophage composition of matter expired in 2015. In addition, our issued patents covering QS-21 Stimulon composition of matter expired in 2008. We continue to explore means of extending the life cycle of our patent portfolio.

The patent position of biopharmaceutical, pharmaceutical or biotechnology companies, including ours, is generally uncertain and involves complex legal and factual considerations. The standards which the USPTO and its foreign counterparts use to grant patents are not always applied predictably or uniformly and can change. There is also no uniform, worldwide policy regarding the subject matter and scope of claims granted or allowable in biopharmaceutical, pharmaceutical or biotechnology patents. The laws of some foreign countries do not protect proprietary information to the same extent as the laws of the United States, and many companies have encountered significant problems and costs in protecting their proprietary information in these foreign countries. Outside the United States, patent protection must be sought in individual jurisdictions, further adding to the cost and uncertainty of obtaining adequate patent protection outside of the United States. Accordingly, we cannot predict whether additional patents protecting our technology will issue in the United States or in foreign jurisdictions, or whether any patents that do issue will have claims of adequate scope to provide competitive advantage. Moreover, we cannot predict whether third parties will be able to successfully obtain claims or the breadth of such claims. The allowance of broader claims may increase the incidence and cost of patent interference proceedings, opposition proceedings, post-grant review, inter partes review, and/or reexamination proceedings, the risk of infringement litigation, and the vulnerability of the claims to challenge. On the other hand, the allowance of narrower claims does not eliminate the potential for adversarial proceedings and may fail to provide a competitive advantage. Our issued patents may not contain claims sufficiently broad to protect us against third parties with similar technologies or products or provide us with any competitive advantage.

If any of our owned or in-licensed patent applications do not issue as patents in any jurisdiction, we may not be able to compete effectively.

Changes in either the patent laws or their interpretation in the United States and other countries may diminish our ability to protect our inventions, obtain, maintain, and enforce our intellectual property rights and, more generally, could affect the value of our intellectual property or narrow the scope of our owned and licensed patents. With respect to our patent portfolio, as of the date of this filing, we own, co-own or have exclusive rights to approximately 30 issued United States patents and approximately 30 issued foreign patents. We also own, co-own or have exclusive rights to approximately 40 pending United States patent applications and approximately 370 pending foreign patent applications. Our patent positions, and those of other biopharmaceutical, pharmaceutical and biotechnology companies, are generally uncertain and involve complex legal, scientific, and factual questions. The standards which the United States Patent and Trademark Office (“USPTO”) uses to grant patents, and the standards which courts use to interpret patents, are not always applied predictably or uniformly and can change, particularly as new technologies develop. Consequently, the level of protection, if any, that will be provided by our patents if we attempt to enforce them and they are challenged, is uncertain. In addition, the type and extent of patent claims that will be issued to us in the future is uncertain. Any patents that are issued may not contain claims that permit us to stop competitors from using similar technology. With respect to both in- licensed and owned intellectual property, we cannot predict whether the patent applications we and our licensors are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide sufficient protection from competitors or other third parties.

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

If the scope of any patent protection we obtain is not sufficiently broad, or if we lose any of our patent protection, our ability to prevent our competitors from commercializing similar or identical technology and product candidates would be adversely affected.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions, and has been the subject of much litigation in recent years. As a result, the issuance, scope, validity, enforceability, and commercial value of our patent rights are highly uncertain. Our approximately 40 pending United States patent applications and approximately 300 pending foreign patent applications may not result in patents being issued which protect our product candidates or patents which effectively prevent others from commercializing competitive technologies and product candidates.

No consistent policy regarding the scope of claims allowable in patents in the biotechnology field has emerged in the United States. The patent situation outside of the United States is even more uncertain. Changes in either the patent laws or their interpretation in the United States and other countries may diminish our ability to protect our inventions and enforce our intellectual property rights, and more generally could affect the value of our intellectual property. In particular, our ability to stop third parties from making, using, selling, offering to sell, or importing products that infringe our intellectual property will depend in part on our success in obtaining and enforcing patent claims that cover our technology, inventions and improvements. 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 products and the methods used to manufacture those products. Moreover, even our issued patents do not guarantee us the right to practice our technology in relation to the commercialization of our products. The area of patent and other intellectual property rights in biotechnology is an evolving one with many risks and uncertainties, and third parties may have blocking patents that could be used to prevent us from commercializing our patented product candidates and practicing our proprietary technology. Our issued patent and those that may issue in the future may be challenged, invalidated, or circumvented, which could limit our ability to stop competitors from marketing related products or limit the length of the term of patent protection that we may have for our product candidates. In addition, the rights granted under any issued patents may not provide us with protection or competitive advantages against competitors with similar technology. Furthermore, our competitors may independently develop similar technologies. For these reasons, we may have competition for our product candidates. Moreover, because of the extensive time required for development, testing and regulatory review of a potential product, it is possible that, before any particular product candidate can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thereby reducing any advantage of the patent.

Moreover, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted after issuance. Even if patent applications we own or license issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors or other third parties from competing with us, or otherwise provide us with any competitive advantage. Any patents that we own or in-license may be challenged, narrowed, circumvented, or invalidated by third parties. Consequently, we do not know whether our product candidates will be protectable or remain protected by valid and enforceable patents. Our competitors or other third parties may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner which could materially adversely affect our business, financial condition, results of operations and prospects.

The issuance of a patent is not conclusive as to its inventorship, scope, validity, or enforceability, and patents that we own or license may be challenged in the courts or patent offices in the United States and abroad. We or our licensors may be subject to a third party preissuance submission of prior art to the USPTO or to foreign patent authorities or become involved in opposition, derivation, revocation, reexamination, post-grant and inter partes review, or interference proceedings or other similar proceedings challenging our owned or licensed patent rights. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate or render unenforceable, our owned or in-licensed patent rights, allow third parties to commercialize our product candidates, and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third-party patent rights. Moreover, we, or one of our licensors, may have to participate in interference proceedings declared by the USPTO to determine priority of invention or in post-grant challenge proceedings, such as oppositions in a foreign patent office, that challenge our or our licensor’s priority of invention or other features of patentability with respect to our owned or in-licensed patents and patent applications. Such challenges may result in loss of patent rights, loss of exclusivity, or in patent claims being narrowed, invalidated, or held unenforceable, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our product candidates. Such proceedings also may result in substantial cost and require significant time from our scientists and management, even if the eventual outcome is favorable to us.

In addition, given the amount of time required for the development, testing, and regulatory review of new product candidates, patents protecting such product candidates might expire before or shortly after such product candidates are commercialized. As a

result, our intellectual property may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

We may in the future co-own patent rights relating to future product candidates with third parties. Some of our in-licensed patent rights are, and may in the future be, co-owned with third parties. In addition, our licensors may co-own the patent rights we in-license with other third parties with whom we do not have a direct relationship. Our exclusive rights to certain of these patent rights are dependent, in part, on inter-institutional or other operating agreements between the joint owners of such patent rights, who are not parties to our license agreements. If our licensors do not have exclusive control of the grant of licenses under any such third-party co-owners' interest in such patent rights or we are otherwise unable to secure such exclusive rights, such co-owners may be able to license their rights to other third parties, including our competitors, and our competitors could market competing products and technology. In addition, we may need the cooperation of any such co- owners of our patent rights in order to enforce such patent rights against third parties, and such cooperation may not be provided to us. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects.

If we fail to comply with our obligations under our intellectual property licenses with third parties, we could lose license rights that are important to our business.

We are currently party to various intellectual property license agreements. These license agreements impose, and we expect that future license agreements may impose, various diligence, milestone payment, royalty, insurance, prosecution, enforcement and other obligations on us. These licenses typically include an obligation to pay an upfront payment, yearly maintenance payments and royalties on sales. If we fail to comply with our obligations under the licenses, the licensors or licensees may have the right to terminate their respective license agreements, in which event we might not be able to market or obtain royalties or other revenue from any product that is covered by the agreements. Termination of the license agreements or reduction or elimination of our licensed rights may result in our having to negotiate new or reinstated licenses with less favorable terms, which could adversely affect our competitive business position and harm our business. In addition, court decisions may introduce uncertainty with respect to terms of a license agreement such as the impact of a challenge to the validity of a licensed patent on the payment obligations or termination rights of the license.

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

Filing, prosecuting and defending patents on our product candidates in all countries throughout the world would be prohibitively expensive. The requirements for patentability may differ in certain countries, particularly developing countries. For example, China has a heightened requirement for patentability, and specifically requires a detailed description of medical uses of a claimed drug. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as 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. 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 on infringing activities is inadequate. These products may compete with our product candidates, 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 and other intellectual property protection, particularly those relating to biopharmaceuticals, 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. In addition, certain countries in Europe and certain developing countries, including India and China, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In those countries, we may have limited remedies if our patents are infringed or if we are compelled to grant a license to our patents to a third party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities. 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 own or license. Finally, our ability to protect and enforce our intellectual property rights may be adversely affected by unforeseen changes in foreign intellectual property laws.

Obtaining and maintaining our patent protection depends on compliance with various procedural, documentary, 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, renewal fees, annuity fees and various other governmental fees on patents and/or applications will be

due to the USPTO and various foreign patent offices at various points over the lifetime of our patents and/or applications. We have systems in place to remind us to pay these fees, and we rely on our outside counsel or service providers to pay these fees when due. Additionally, the USPTO and various foreign patent office's require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. We employ reputable law firms and other professionals to help us comply, and in many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with rules applicable to the particular jurisdiction. However, 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. If such an event were to occur, it could have a material adverse effect on our business. In addition, we are responsible for the payment of patent fees for patent rights that we have licensed from other parties.

If any licensor of these patents does not itself elect to make these payments, and we fail to do so, we may be liable to the licensor for any costs and consequences of any resulting loss of patent rights.

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

Obtaining and enforcing patents in the biopharmaceutical industry involves both technological and legal complexity, and therefore, is costly, time-consuming and inherently uncertain. In addition, the United States has enacted and implemented wide-ranging patent reform legislation. Further, recent U.S. Supreme Court rulings have either narrowed the scope of patent protection available in certain circumstances or 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.

For our U.S. patent applications containing a claim not entitled to priority before March 16, 2013, there is a greater level of uncertainty in the patent law. In September 2011, AIA was signed into law. The AIA includes a number of significant changes to U.S. patent law, including provisions that affect the way patent applications are prosecuted and also affect patent litigation. The USPTO has developed regulations and procedures to govern administration of the AIA, and many of the substantive changes to patent law associated with the AIA. It is not clear what other, if any, impact the AIA will have on the operation of our business. Moreover, the AIA and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business and financial condition.

An important change introduced by the AIA is that, as of March 16, 2013, the United States transitioned to a "first-inventor-to- file" system for deciding which party should be granted a patent when two or more patent applications are filed by different parties claiming the same invention. A third party that files a patent application in the USPTO after that date but before us could therefore be awarded a patent covering an invention of ours even if we had made the invention before it was made by the third party. This requires us to be cognizant going forward of the time from invention to filing of a patent application. Furthermore, our ability to obtain and maintain valid and enforceable patents depends on whether the differences between our technology and the prior art allow our technology to be patentable over the prior art. 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 either (i) file any patent application related to our product candidates or (ii) invent any of the inventions claimed in our patents or patent applications.

Among some of the other changes introduced by the AIA are changes that limit where a patentee may file a patent infringement suit and providing opportunities for third parties to challenge any issued patent in the USPTO. This applies to all of our U.S. patents, even those issued before March 16, 2013. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in United States federal court necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third party may attempt to use the USPTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action.

If we are unable to protect the confidentiality of our proprietary information, the value of our technology and products could be adversely affected.

In addition to patent protection, we also rely on other proprietary rights, including protection of trade secrets, and other proprietary information. To maintain the confidentiality of trade secrets and proprietary information, we enter into confidentiality agreements with our employees, consultants, collaborators and others upon the commencement of their relationships with us. These agreements require that all confidential information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. Our agreements with employees

and our personnel policies also provide that any inventions conceived by the individual in the course of rendering services to us shall be our exclusive property. However, we may not obtain these agreements in all circumstances, and individuals with whom we have these agreements may not comply with their terms. Thus, despite such agreement, such inventions may become assigned to third parties. In the event of unauthorized use or disclosure of our trade secrets or proprietary information, these agreements, even if obtained, may not provide meaningful protection, particularly for our trade secrets or other confidential information. To the extent that our employees, consultants or contractors use technology or know-how owned by third parties in their work for us, disputes may arise between us and those third parties as to the rights in related inventions. To the extent that an individual who is not obligated to assign rights in intellectual property to us is rightfully an inventor of intellectual property, we may need to obtain an assignment or a license to that intellectual property from that individual, or a third party or from that individual's assignee. Such assignment or license may not be available on commercially reasonable terms or at all.

Adequate remedies may not exist in the event of unauthorized use or disclosure of our proprietary information. The disclosure of our trade secrets would impair our competitive position and may materially harm our business, financial condition and results of operations. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to maintain trade secret protection could adversely affect our competitive business position. In addition, others may independently discover or develop our trade secrets and proprietary information, and the existence of our own trade secrets affords no protection against such independent discovery.

Depending upon the nature of the product and the specifics of the related FDA marketing approval, data exclusivity under the Biologics Price Competition and Innovation Act ("BPCIA") or related laws in the U.S. or certain foreign countries and territories may be available for our products. The BPCIA provides that FDA shall not approve certain biosimilars from the date of first licensure of a reference product for 12 years, subject to certain restrictions. However, we may not obtain or be eligible for data exclusivity because of, for example, the nature of the product with respect to other products on the market, our relationships with our partners (including our licensors and licensees), failing to claim the exclusivity at the appropriate time or otherwise failing to satisfy applicable requirements. If we are unable to obtain data exclusivity, our competitors may obtain earlier approval of competing products, and our business, financial condition, results of operations and prospects could be materially harmed.

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

We may have received confidential and proprietary information from third parties. In addition, we employ individuals who were previously employed at other biopharmaceutical, biotechnology or pharmaceutical companies. We may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise improperly used or disclosed confidential information of these third parties or our employees' former employers. Further, we may be subject to ownership disputes in the future arising, for example, from conflicting obligations of consultants or others who are involved in developing our product candidates. We may also be subject to claims that former employees, consultants, independent contractors, collaborators or other third parties have an ownership interest in our patents or other intellectual property. Litigation may be necessary to defend against these and other claims challenging our right to and use of confidential and proprietary information. If we fail in defending any such claims, in addition to paying monetary damages, we may lose our rights therein. Such an outcome could have a material adverse effect on our business. 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.

Our commercial success depends significantly on our ability to operate without infringing the patents and other proprietary rights of third parties.

Our success will depend in part on our ability to operate without infringing the proprietary rights of third parties. Other entities may have or obtain patents or proprietary rights that could limit our ability to make, use, sell, offer for sale or import our future approved products or impair our competitive position. In particular, the patent landscapes around the discovery, development, manufacture and commercial use of our product candidates are crowded.

Third parties may have or obtain valid and enforceable patents or proprietary rights that could block us from developing product candidates using our technology. Our failure to obtain a license to any technology that we require may materially harm our business, financial condition and results of operations. Moreover, our failure to maintain a license to any technology that we require may also materially harm our business, financial condition, and results of operations. Furthermore, we would be exposed to a threat of litigation.

In the biopharmaceutical industry, significant litigation and other proceedings regarding patents, patent applications, trademarks and other intellectual property rights have become commonplace. The types of situations in which we may become a party to such litigation or proceedings include:

- we or our collaborators may initiate litigation or other proceedings against third parties seeking to invalidate the patents held by those third parties or to obtain a judgment that our products or processes do not infringe those third parties' patents;

- if our competitors file patent applications that claim technology also claimed by us or our licensors or licensees, we or our licensors or licensees may be required to participate in interference, derivation or other proceedings to determine the priority of invention, which could jeopardize our patent rights and potentially provide a third party with a dominant patent position;
- if third parties initiate litigation claiming that our processes or products infringe their patent or other intellectual property rights, we and our collaborators will need to defend against such proceedings; and
- if a license to necessary technology is terminated, the licensor may initiate litigation claiming that our processes or products infringe or misappropriate their patent or other intellectual property rights and/or that we breached our obligations under the license agreement, and we and our collaborators would need to defend against such proceedings.

These lawsuits would be costly and could affect our results of operations and divert the attention of our management and scientific personnel. There is a risk that a court would decide that we or our collaborators are infringing the third party's patents and would order us or our collaborators to stop the activities covered by the patents. In that event, we or our collaborators may not have a viable alternative to the technology protected by the patent and may need to halt work on the affected product candidate or cease commercialization of an approved product. In addition, there is a risk that a court will order us or our collaborators to pay the other party damages. An adverse outcome in any litigation or other proceeding could subject us to significant liabilities to third parties and require us to cease using the technology that is at issue or to license the technology from third parties. We may not be able to obtain any required licenses on commercially acceptable terms or at all. Any of these outcomes could have a material adverse effect on our business.

The biopharmaceutical industry has produced a significant number of patents, and it may not always be clear to industry participants, including us, which patents cover various types of products or methods of use. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform or predictable. If we are sued for patent infringement, we would need to demonstrate that our products or methods either do not infringe the patent claims of the relevant patent or that the patent claims are invalid, and we may not be able to do this. Proving invalidity is difficult. For example, in the United States, proving invalidity requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents. Even if we are successful in these proceedings, we may incur substantial costs and divert management's time and attention in pursuing these proceedings, which could have a material adverse effect on us. If we are unable to avoid infringing the patent rights of others, we may be required to seek a license, defend an infringement action or challenge the validity of the patents in court. Patent litigation is costly and time consuming. We may not have sufficient resources to bring these actions to a successful conclusion. In addition, if we do not obtain a license, develop or obtain non-infringing technology, fail to defend an infringement action successfully or have infringed patents declared invalid, we may incur substantial monetary damages, encounter significant delays in bringing our product candidates to market and be precluded from manufacturing or selling our product candidates.

The cost of any patent litigation or other proceeding, even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the cost of such litigation and proceedings more effectively than we can because of their substantially greater resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace. Patent litigation and other proceedings may also absorb significant management time.

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

We cannot guarantee that any of our or our licensors' patent searches or analyses, including the identification of relevant patents, the scope of patent claims or the expiration of relevant patents, are complete or thorough, nor can we be certain that we have identified each and every third-party patent and pending patent application in the United States and abroad that is relevant to or necessary for the commercialization of our product candidates in any jurisdiction. For example, U.S. patent applications filed before November 29, 2000 and certain U.S. patent applications filed after that date that will not be filed outside the United States remain confidential until patents issue. Patent applications in the United States and elsewhere are published approximately 18 months after the earliest filing for which priority is claimed, with such earliest filing date being commonly referred to as the priority date. Therefore, patent applications covering our product candidates could have been filed by third parties without our knowledge. Additionally, pending patent applications that have been published can, subject to certain limitations, be later amended in a manner that could cover our product candidates or the use of our product candidates. The scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Our interpretation of the relevance or the scope of a patent or a pending application may be incorrect, which may negatively impact our ability to market our product candidates. We may incorrectly

determine that our product candidates are not covered by a third-party patent or may incorrectly predict whether a third party's pending application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or abroad that we consider relevant may be incorrect, which may negatively impact our ability to develop and market our product candidates. Our failure to identify and correctly interpret relevant patents may negatively impact our ability to develop and market our product candidates.

If we fail to identify and correctly interpret relevant patents, we may be subject to infringement claims. We cannot guarantee that we will be able to successfully settle or otherwise resolve such infringement claims. If we fail in any such dispute, in addition to being forced to pay damages, which may be significant, we may be temporarily or permanently prohibited from commercializing any of our product candidates that are held to be infringing. We might, if possible, also be forced to redesign product candidates so that we no longer infringe the third-party intellectual property rights. Any of these events, even if we were ultimately to prevail, could require us to divert substantial financial and management resources that we would otherwise be able to devote to our business and could adversely affect our business, financial condition, results of operations and prospects.

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

Third parties may infringe or misappropriate our intellectual property, including our existing patents, patents that may issue to us in the future, or the patents of our licensors or licensees to which we have a license. As a result, we may be required to file infringement claims to stop third-party infringement or unauthorized use. Further, we may not be able to prevent, alone or with our licensors or licensees, misappropriation of our intellectual property rights, particularly in countries where the laws may not protect those rights as fully as in the United States.

If we or one of our licensors or licensees were to initiate legal proceedings against a third party to enforce a patent covering our product candidates, the defendant could counterclaim that the patent covering our product candidates 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.

In addition, within and outside of the United States, there has been a substantial amount of litigation and administrative proceedings, including interference and reexamination proceedings before the USPTO or oppositions and other comparable proceedings in various foreign jurisdictions, regarding patent and other intellectual property rights in the biopharmaceutical industry. Notably, the Leahy-Smith America Invents Act, or the American Invents Act ("AIA"), introduced new procedures, including inter partes review and post grant review. These procedures may be used by competitors to challenge the scope and/or validity of our patents, including those patents perceived by our competitors as blocking entry into the market for their products, and the outcome of such challenges.

Even after they have been issued, our patents and any patents which we license may be challenged, narrowed, invalidated or circumvented. If our patents are invalidated or otherwise limited or will expire prior to the commercialization of our product candidates, other companies may be better able to develop products that compete with ours, which could adversely affect our competitive business position, business prospects and financial condition.

The following are non-exclusive examples of litigation and other adversarial proceedings or disputes that we could become a party to involving our patents or patents licensed to us:

- we or our collaborators may initiate litigation or other proceedings against third parties to enforce our patent rights;
- third parties may initiate litigation or other proceedings seeking to invalidate patents owned by or licensed to us or to obtain a declaratory judgment that their product or technology does not infringe our patents or patents licensed to us;
- third parties may initiate opposition proceedings, post-grant review, inter partes review, or reexamination proceedings challenging the validity or scope of our patent rights, requiring us or our collaborators and/or licensors or licensees to participate in such proceedings to defend the validity and scope of our patents;
- there may be a challenge or dispute regarding inventorship or ownership of patents currently identified as being owned by or licensed to us;
- the USPTO may initiate an interference or derivation proceeding between patents or patent applications owned by or licensed to us and those of our competitors, requiring us or our collaborators and/or licensors or licensees to participate in an interference or derivation proceeding to determine the priority of invention, which could jeopardize our patent rights; or
- third parties may seek approval to market biosimilar versions of our future approved products prior to expiration of relevant patents owned by or licensed to us, requiring us to defend our patents, including by filing lawsuits alleging patent infringement.

These lawsuits and proceedings would be costly and could affect our results of operations and divert the attention of our managerial and scientific personnel. There is a risk that a court or administrative body could decide that our patents are invalid or not infringed by a third party's activities, or that the scope of certain issued claims must be further limited. An adverse outcome in a litigation or proceeding involving our own patents could limit our ability to assert our patents against these or other competitors, affect our ability to receive royalties or other licensing consideration from our licensees, and may curtail or preclude our ability to exclude third parties from making, using and selling similar or competitive products. An adverse outcome may also put our pending patent applications at risk of not issuing, or issuing with limited and potentially inadequate scope to cover our product candidates. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we and the patent examiner were unaware during prosecution. Additionally, it is also possible that prior art of which we are aware, but which we do not believe affects the validity or enforceability of a claim, may, nonetheless, ultimately be found by a court of law or an administrative panel to affect the validity or enforceability of a claim, for example, if a priority claim is found to be improper. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we could lose at least part, and perhaps all, of the patent protection on our relevant product candidates. Such a loss of patent protection could have a material adverse impact on our business.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation or administrative proceedings, there is a risk that some of our confidential information could be compromised by disclosure. In addition, during the course of litigation or administrative proceedings, there could be public announcements of the results of hearings, motions or other interim proceedings or developments or public access to related documents. If investors perceive these results to be negative, the market price for our common stock could be significantly harmed. Any of these occurrences could adversely affect our competitive business position, business prospects, and financial condition.

Intellectual property rights do not necessarily address all potential threats to our competitive advantage. The degree of future protection for our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. For example:

- others may be able to develop a platform that is similar to, or better than, ours in a way that is not covered by the claims of our patents;
- others may be able to make compounds that are similar to our product candidates but that are not covered by the claims of our patents;
- we might not have been the first to make the inventions covered by patents or pending patent applications;
- we might not have been the first to file patent applications for these inventions;
- any patents that we obtain may not provide us with any competitive advantages or may ultimately be found invalid or unenforceable; or
- we may not develop additional proprietary technologies that are patentable.

If we do not obtain patent term extension and/or data exclusivity for any product candidates we may develop, our business may be materially harmed.

Depending upon the timing, duration and specifics of any FDA marketing approval of any product candidates we may develop, one or more of our owned or in-licensed U.S. patents may be eligible for limited patent term extension under the Hatch-Waxman Act. The Hatch-Waxman Act permits a patent term extension of up to five years as compensation for patent term lost during the FDA regulatory review process. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent may be extended and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. Similar extensions as compensation for patent term lost during regulatory review processes are also available in certain foreign countries and territories, such as in Europe under a Supplementary Patent Certificate. However, we may not be granted an extension in the United States and/or foreign countries and territories because of, for example, failing to exercise due diligence during the testing phase or regulatory review process, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents, or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain patent term extension or the term of any such extension is shorter than what we request, our competitors may obtain approval of competing products following our patent expiration, and our business, financial condition, results of operations and prospects could be materially harmed.

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

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

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

Our registered or unregistered trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names, which we need to build name recognition among potential partners or customers in our markets of interest. At times, competitors or other third parties may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. We also have partners who may market or refer to our trademarks or trade names and may use the trademarks or trade names is ways that impair our branding strategy. Recepta and Betta Pharmaceuticals have rights to balstilimab and zalifrelimab in certain South American countries and greater China, respectively, and each may adopt a marketing strategy, including use or registration of trademarks and tradenames, that could impair our brand identity or strategy and possibly cause market confusion. If we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable, or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In this case, we could ultimately be forced to cease use of such trademarks. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively and our business may be adversely affected. Our efforts to enforce or protect our proprietary rights related to trademarks, trade secrets, domain names, copyrights or other intellectual property may be ineffective and could result in substantial costs and diversion of resources and could adversely affect our business, financial condition, results of operations and prospects.

Intellectual property rights do not necessarily address all potential threats.

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

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

- we may not develop additional proprietary technologies that are patentable;
- the patents of others may harm our business; and
- we may choose not to file a patent in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property.

Should any of these events occur, they could have a material adverse effect on our business, financial condition, results of operations and prospects.

Risks Related to Business Operations, Employee Matters and Managing Growth

We have undergone significant growth across multiple locations over the past few years, and are focusing on further enhancing core areas and capabilities as we move toward commercialization. In addition, we have consolidated certain sites while expanding others to focus on our core priorities and future needs. We may encounter difficulties in managing these growth and/or consolidation efforts, either of which could disrupt our operations.

Over the past few years, we have more than tripled our headcount, in part through various acquisitions and the expansion of our research and development activities both nationally and internationally. While we have restructured our organization over the past few years, we expect to continue increasing our headcount in certain core areas as we continue to build our development, manufacturing and commercialization capabilities and integrate our acquired technology platforms. To manage these organizational changes, we must continue to implement and improve our managerial, operational and financial systems and continue to recruit, train and retain qualified personnel. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our timelines may be delayed, our ability to generate revenue could be reduced, and we may not be able to implement our business strategy.

As part of our efforts to optimize efficiency across our organization, we previously closed offices in Germany and Switzerland and consolidated these operations in the UK. In January 2020, our subsidiary AgenTus closed its Waterloo, Belgium office and consolidated those operations in our Lexington, MA facility. In March 2020, as a result of the COVID-19 pandemic, we completed a company-wide reduction in force. If these transition efforts prove to be unsuccessful, or if we identify management or operational gaps in connection with our changes, it could cause delays in discovery timelines and increased costs for certain of our internal and partnered programs, which also could have an adverse effect on our business, financial condition and results of operations. We are still in the process of liquidating 4-AB and transferring intellectual property rights from Switzerland to the United States or elsewhere. There could be adverse tax consequences resulting from this migration of intellectual property rights, which could have an adverse effect on our business and operations.

Product liability and other claims against us may reduce demand for our products and/or result in substantial damages.

We face an inherent risk of product liability exposure related to testing our product candidates in human clinical trials and manufacturing antibodies in our Berkeley, CA facility and may face even greater risks if we ever sell products commercially. An individual may bring a product liability claim against us if one of our product candidates causes, or merely appears to have caused, an injury. Product liability claims may result in:

- regulatory investigations;
- injury to our reputation;
- withdrawal of clinical trial volunteers;
- costs of related litigation;
- substantial monetary awards to plaintiffs; and
- decreased demand for any future products.

We manufacture the Prophage vaccines from a patient’s cancer cells, and medical professionals must inject the vaccines into the same patient from which they were manufactured. A patient may sue us if a hospital, a shipping company, or we fail to receive the removed cancer tissue or deliver that patient’s vaccine. We do not have any other insurance that covers loss of or damage to the Prophage vaccines or tumor material, and we do not know whether such insurance will be available to us at a reasonable price or at all. We have limited product liability coverage for use of our product candidates. Our product liability policy provides $10.0 million aggregate coverage and $10.0 million per occurrence coverage. This limited insurance coverage may be insufficient to fully cover us

for future claims.

We are also subject to laws generally applicable to businesses, including but not limited to, federal, state and local wage and hour, employee classification, mandatory healthcare benefits, unlawful workplace discrimination and whistle-blowing. Any actual or alleged failure to comply with any regulation applicable to our business or any whistle-blowing claim, even if without merit, could result in costly litigation, regulatory action or otherwise harm our business, results of operations, financial condition, cash flow and future prospects.

We are highly reliant on certain members of our management team. In addition, we have limited internal resources and if we fail to recruit and/or retain the services of key employees and external consultants as needed, we may not be able to achieve our strategic and operational objectives.

Both Garo H. Armen, Ph.D., the Chairman of our Board of Directors and our Chief Executive Officer who co-founded the Company in 1994, and Jennifer Buell, Ph.D., our President and Chief Operating Officer, are integral to building our company and developing our technology. If either Dr. Armen or Dr. Buell is unable or unwilling to continue his or her relationship with Agenus, our business may be adversely impacted. We have employment agreements with Dr. Armen and Dr. Buell. They both play an important role in our day-to-day activities, and we do not carry key employee insurance policies for Dr. Armen, Dr. Buell or any other employee. The loss of the services of Dr. Armen or Dr. Buell, 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.

The bulk of our operations are conducted at our facilities in Cambridge, UK, Lexington, MA and Berkeley, CA. The Cambridge, New England and Northern California regions are 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.

Our future growth success depends to a significant extent on the skills, experience and efforts of our executive officers and key members of our clinical and scientific staff. We face intense competition for qualified individuals from other pharmaceutical, biopharmaceutical and biotechnology companies, as well as academic and other research institutions. To attract and retain employees 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. Employment of our key employees is at-will, which means that any of our employees could leave our employment at any time, with or without notice. We may be unable to retain our current personnel or attract or assimilate other highly qualified management and clinical personnel in the future on acceptable terms. The loss of any or all of these individuals could harm our business and could impair our ability to support our collaboration partners or our growth generally.

Our internal computer systems, or those of our third-party CROs, CMOs, licensees, collaborators or other contractors or consultants, may fail or suffer security breaches, which could result in a material disruption in our business and operations or could subject us to sanctions and penalties that could have a material adverse effect on our reputation or financial condition.

Despite the implementation of security measures, our internal computer systems and those of our current and future CROs, CMOs, licensees, collaborators and other contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. Potential vulnerabilities can also be exploited from inadvertent or intentional actions of our employees, third-party vendors, business partners, or by malicious third parties. Attacks of this nature are increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives (including, but not limited to, industrial espionage) and expertise, including organized criminal groups, “hacktivists,” nation states and others. In July 2020, the United States Government charged a pair of Chinese hackers working on behalf of China’s intelligence service in relation to the hacking of U.S. based biotechnology companies researching COVID-19 vaccines. In addition to the extraction of sensitive information, such attacks could include the deployment of harmful malware, ransomware, denial-of-service attacks, social engineering and other means to affect service reliability and threaten the confidentiality, integrity and availability of information. In addition, the prevalent use of mobile devices increases the risk of data security incidents. While we are not aware of any such material system failure, accident 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, on-going or future clinical trials could result in delays in our regulatory approval efforts and significant costs to recover or reproduce the data. Likewise, we rely on third parties to manufacture certain of our drug candidates and conduct clinical trials, and similar events relating to their computer systems could also have a material adverse effect on our business. 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 liabilities and the further development and commercialization of our product candidates could be delayed. We do not maintain cyber liability insurance, and would therefore have no coverage for any losses resulting from any data security incident.

We use and store customer, vendor, employee and business partner and, in certain instances patient, personally identifiable information in the ordinary course of our business. We are subject to various domestic and international privacy and security regulations, including but not limited to the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), which mandates, among other things, the adoption of uniform standards for the electronic exchange of information in common healthcare transactions, as well as standards relating to the privacy and security of individually identifiable health information, which require the adoption of administrative, physical and technical safeguards to protect such information. In addition, many states have enacted comparable laws addressing the privacy and security of health information, some of which are more stringent than HIPAA. Failure to comply with these standards, or a computer security breach or cyber-attack that affects our systems or results in the unauthorized release of proprietary or personally identifiable information, could subject us to criminal penalties and civil sanctions, and our reputation could be materially damaged, and our operations could be impaired. We may also be exposed to a risk of loss or litigation and potential liability, which could have a material adverse effect on our business, results of operations and financial condition.

Natural or man-made calamities, or public health crises, could disrupt our business and materially adversely affect our operations and those of our strategic partners.

Our operations, and those of our CROs, CMOs, and other contractors and consultants together with regulatory agencies such as the FDA or EMA, 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. The occurrence of any of these business disruptions could prevent us, or our collaborators and business partners or regulators, from using all or a significant portion of our, or their, facilities or disrupt our supply chain, and, it may be difficult or, in certain cases, impossible for us to continue certain activities, such as for example our manufacturing capabilities, for a substantial period of time. The disaster recovery and business continuity plans we have in place currently are limited and are unlikely to prove adequate in the event of a serious disaster or similar event. We may incur substantial expenses and delays as a result of the limited nature of our disaster recovery and business continuity plans, which could have a material adverse effect on our business. We rely in part on third-party manufacturers to produce and process some of our product candidates. Our ability to obtain some of our clinical supplies of our product candidates could be disrupted if the operations of these suppliers are affected by a man-made or natural disaster or other business interruption.

We own an antibody pilot plant manufacturing facility and lease additional office space in Berkeley, CA. This location is in an area of seismic activity near active earthquake faults and active wildfire activity. In October 2019, Pacific Gas and Electric Company ("PG&E"), the utility supplier for our Berkeley, CA facility provided notice to all residents and businesses in Almeda County (where Berkeley, CA is located) that it would shut off power to the county for a multiday period due to the risk of wildfires. The emergency backup generators located at our Berkeley, CA facility are not able to power the entire facility and only have enough fuel capacity to provide emergency power for a few hours. We have plans in place to maintain the fuel supply of our generators in the event of an extended power interruption, but there is no guarantee that such plans will be adequate to maintain emergency power at our Berkeley, CA facility. In addition, many of our employees reside in Alameda County and may be unable to leave home for the duration of any power shut off. While PG&E did not shut off power to our facility in October 2019, PG&E may do so in the future on short notice. We do not maintain earthquake insurance coverage for our owned and leased properties in Berkeley, CA.

In March 2020, we put in place a number of protective measures in response to the COVID-19 pandemic. These measures include cancelling all commercial business travel, requesting employees to limit non-essential personal travel, asking some employees to self-quarantine at home, adjusting our facilities janitorial and sanitary policies, encouraging employees to work from home to the extent their job function enables them to do so, staggering the working hours of employees that are unable to perform their duties remotely and reconfiguring our facilities for physical distancing. We are revisiting these measures on a regular basis as the pandemic evolves, and we are likely to take additional action as we learn more and as instruction is provided by national, state and local governmental agencies. These measures have resulted, and any future actions are likely to result, in a disruption to our business. Our employees are also impacted by the closures of their children's schools for lengthy periods of time. For instance, in both California and Massachusetts, all public and private elementary and secondary schools were closed for the duration of the 2019-2020 academic year, leaving many of our employees with no choice but to work from home while also caring for their children, which caused a loss in employee productivity. We expect this state of affairs to continue at least into 2021 as many schools are undergoing a partially, or fully, remote 2020-2021 academic year. In addition, in March 2020, the United States government announced that it would suspend air travel between the United States and parts of Europe for a 30-day period and subsequently revised this suspension to include the UK, where we have an office and employees. Starting in July 2020, the European Union banned entry by travelers from the US, and, at present, the U.K. is requiring travelers from the US to self-quarantine for 14-days after arrival. In the event the governments in Massachusetts, California or the UK further extend their shelter in place orders, travel bans, or otherwise prohibit employees from

going to work for a longer period of time, our business will be disrupted and our programs and timelines are likely to be delayed, depending on the ultimate length and severity of the mandate. Not all of our employees are able to perform their duties or function remotely.

The operations of our strategic partners could also be impacted by calamities or public health crises, which could materially and adversely affect our cash resources and operations. For instance, at the beginning of 2020, we projected receipt of approximately $60.0 million of cash milestone payments from existing partners in 2020. Although we did receive $25.1 million of this in 2020, as a result of the impact of COVID-19 on our partner's programs and trials, the remaining $35.0 million was delayed and not received last year, which impacts our cash runway and ability to fund our operations. Additional delays resulting from COVID-19 or other crises are likely to materially adversely affect our business.

Failure to realize the anticipated benefits of our strategic acquisitions and licensing transactions could adversely affect our business, operations and financial condition.

An important part of our business strategy has been to identify and advance a pipeline of product candidates by acquiring and in-licensing product candidates, technologies and businesses that we believe are a strategic fit with our existing business. Since we acquired 4-AB in 2014, we have completed numerous additional strategic acquisitions and licensing transactions. The ultimate success of these strategic transactions entails numerous operational and financial risks, including:

- higher than expected development and integration costs;
- difficulty in combining the technologies, operations and personnel of acquired businesses with our technologies, operations and personnel;
- exposure to unknown liabilities;
- difficulty or inability to form a unified corporate culture across multiple office sites both nationally and internationally;
- inability to retain key employees of acquired businesses;
- disruption of our business and diversion of our management's time and attention; and
- difficulty or inability to secure financing to fund development activities for such acquired or in-licensed product candidates, technologies or businesses.

We have limited resources to integrate acquired and in-licensed product candidates, technologies and businesses into our current infrastructure, and we may fail to realize the anticipated benefits of our strategic transactions. Any such failure could have an adverse effect on our business, operations and financial condition.

We intend to advance our cell therapy business through our subsidiary, AgenTus Therapeutics, eventually with separate funding. Moving intellectual property assets into AgenTus Therapeutics in foreign jurisdictions could have adverse tax consequences, and there is no guarantee that we will be able to attract external funding. Moreover, even if the business is funded, there is no guarantee that it will be successful.

We are currently in the process of pursuing external funding and partnership opportunities to advance AgenTus Therapeutics, but Agenus is currently funding such operations. There is no guarantee that external funding will be available. If funding is available, there is no guarantee that it will be on attractive or acceptable terms, or that it will be adequate to advance the business to an inflection point for additional funding, including any potential initial public offering. Similarly, there is no guarantee that partnership opportunities will be available on attractive terms, if at all. If external funding is not available, we may be forced to either retire these programs or continue to use internal resources to advance them. In addition, our cell therapy assets are early stage and just recently entered the clinic. Even if adequate funding and partnership opportunities are available, there is no guarantee that we or AgenTus Therapeutics will be successful in advancing one or more product candidates through clinical development. In addition, most of the efforts being made on behalf of AgenTus Therapeutics are utilizing several members of Agenus' management team and Agenus' internal general and administrative resources. The current structure could distract management and divert Agenus resources from Agenus' own core pipeline and programs.

The cell therapy assets necessary to enable AgenTus Therapeutics are currently owned or controlled by Agenus in the United States and Switzerland. In connection with capitalizing AgenTus Therapeutics, these assets will be transferred or licensed to new legal entities within the United States and Europe and potentially others. Transferring these assets or licensing them on an exclusive basis would require that taxes be paid based on the fair market value of the assets. We may not have adequate net operating losses to offset any tax liabilities in the relevant jurisdictions. Moreover, we have previously disclosed our interest in potentially issuing a tax-free dividend to Agenus' stockholders in the form of stock of AgenTus Therapeutics. There is no guarantee that any such dividend will be

tax-free or that it will be issued at all, or the timing thereof. If we issue a dividend in the form of stock, there could be adverse tax consequences for certain of our stockholders.

Risks Related to our Common Stock

The trading volume and public trading price of our common stock has been volatile.

During the period from our initial public offering on February 4, 2000 to December 31, 2020, and the year ended December 31, 2020, the closing price of our common stock has fluctuated between $1.59 (or $0.27 pre-reverse stock split) and $315.78 (or $52.63 pre-reverse stock split) per share and $1.92 and $5.20 per share, respectively. The average daily trading volume for the year ended December 31, 2020 was approximately 2,557,223 shares, while the average daily trading volume for the year ended December 31, 2019 was approximately 1,191,940 shares. The market may experience significant price and volume fluctuations that are often unrelated to the operating performance of individual companies. In addition to general market volatility, many factors may have a significant adverse effect on the market price of our stock, including:

- continuing operating losses, which we expect over the next several years as we continue our development activities;
- announcements of decisions made by public officials or delays in any such announcements;
- results of our pre-clinical studies and clinical trials or delays in anticipated timing;
- delays in our regulatory filings or those of our partners;
- announcements of new collaboration agreements with strategic partners or developments by our existing collaboration partners;
- announcements of acquisitions;
- announcements of technological innovations, new commercial products, failures of products, or progress toward commercialization by our competitors or peers;
- failure to realize the anticipated benefits of acquisitions;
- developments concerning proprietary rights, including patent and litigation matters;
- publicity regarding actual or potential results with respect to product candidates under development;
- quarterly fluctuations in our financial results, including our average monthly cash used in operating activities;
- variations in the level of expenses related to any of our product candidates or clinical development programs;
- additions or departures of key management or scientific personnel;
- conditions or trends in the biopharmaceutical, biotechnology and pharmaceutical industries generally;
- other events or factors, including those resulting from war, incidents of terrorism, natural disasters or responses to these events;
- changes in accounting principles;
- general economic and market conditions and other factors that may be unrelated to our operating performance or the operating performance of our competitors, including changes in market valuations of similar companies; and
- sales of common stock by us or our stockholders in the future, as well as the overall trading volume of our common stock.

In the past, securities class action litigation has often been brought against a company following a significant decline in the market price of its securities. This risk is especially relevant for us because many biopharmaceutical, biotechnology and pharmaceutical companies experience significant stock price volatility.

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. 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 would likely decline. If one or more of these analysts ceases coverage of us or fails to publish reports on us regularly, demand for our stock could decrease, which could cause our stock price and trading volume to decline.

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

We have never declared or paid any cash dividend on our common stock and do not intend to do so in the foreseeable future. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business. Therefore, the success of an investment in shares of our common stock will depend upon any future appreciation in their value. There is no guarantee that shares of our common stock will appreciate in value or maintain their current value.

Failure to maintain effective internal controls in accordance with Section 404 of the Sarbanes-Oxley Act of 2002 and to comply with changing regulation of corporate governance and public disclosure could have a material adverse effect on our operating results and the price of our common stock.

The Sarbanes-Oxley Act of 2002 and rules adopted by the SEC and Nasdaq have resulted in significant costs to us. In particular, our efforts to comply with Section 404 of the Sarbanes-Oxley Act of 2002 and related regulations regarding the required assessment of our internal control over financial reporting, and our independent registered public accounting firm's audit of internal control over financial reporting, have required commitments of significant management time. We expect these commitments to continue.

Our internal control over financial reporting (as defined in Rules 13a-15 of the Exchange Act) is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our consolidated financial statements for external purposes in accordance with U.S. GAAP. Because of its inherent limitations, internal control over financial reporting may not prevent or detect all deficiencies or weaknesses in our financial reporting. While our management has concluded that there were no material weaknesses in our internal control over financial reporting as of December 31, 2020, our procedures are subject to the risk that our controls may become inadequate because of changes in conditions or as a result of a deterioration in compliance with such procedures. No assurance is given that our procedures and processes for detecting weaknesses in our internal control over financial reporting will be effective.

Changing laws, regulations and standards relating to corporate governance and public disclosure, are creating uncertainty for companies. Laws, regulations and standards are subject to varying interpretations in some cases due to their lack of specificity, and as a result, their application in practice may evolve over time as new guidance is provided, which could result in continuing uncertainty regarding compliance matters and higher costs caused by ongoing revisions to disclosure and governance practices. If we fail to comply with these laws, regulations and standards, our reputation may be harmed, and we might be subject to sanctions or investigation by regulatory authorities, such as the SEC. Any such action could adversely affect our operating results and the market price of our common stock.

The sale of a significant number of shares could cause the market price of our stock to decline.

The sale by us or the resale by stockholders of a significant number of shares of our common stock could cause the market price of our common stock to decline. As of March 15, 2021, we had 204,685,422 shares of common stock outstanding. Except for the 4,962,779 shares of common stock issued to Betta Pharmaceuticals in July 2020, substantially all of these shares are eligible for sale on Nasdaq, although certain of the shares are subject to sales volume and other limitations. We have filed registration statements to permit the sale of approximately 36,000,000 shares of common stock under our equity incentive plans, and to permit the sale of 1,500,000 shares of common stock under our 2015 Inducement Equity Plan. We have also filed registration statements to permit the sale of approximately 667,000 shares of common stock under our Employee Stock Purchase Plan, to permit the sale of 425,000 shares of common stock under our Directors' Deferred Compensation Plan, to permit the sale of approximately 31,100,319 shares of common stock pursuant to various private placement agreements and to permit the sale of up to 100,000,000 shares of our common stock pursuant to our At Market Issuance Sales Agreement. As of March 12, 2021, an aggregate of approximately 110,987,563 of these shares remained available for sale. In October 2018, we completed a private placement of 18,459 shares of Series C-1 convertible preferred stock, convertible into 18,459,000 shares of common stock. The resale of all 18,459,000 shares of common stock underlying the 18,459 shares of Series C-1 convertible preferred stock was registered with the SEC pursuant to a Registration Statement on Form S-3 filed with the SEC on November 8, 2018 and declared effective on December 10, 2018. As part of our collaboration with Betta Pharmaceuticals, we completed a private placement of 4,962,779 shares of common stock in July 2020, the resale of which must be registered with the SEC by June 2021. As part of our collaboration with Gilead, we completed a private placement of 11,111,111 shares of common stock in January 2019, and on October 25, 2019, we filed a Registration Statement on Form S-3 to register the resale of these shares by Gilead, as required under our agreement. In connection with our acquisition of 4-AB in February 2014, we are obligated to make contingent milestone payments to the former shareholders of 4-AB, payable in cash or shares of our common stock at our option, as follows (i) $10.0 million upon our market capitalization exceeding $750.0 million for 30 consecutive trading days prior to the earliest of (a) February 12, 2024, (b) the sale of 4-AB or (c) the sale of Agenus and (ii) $10.0 million upon our market capitalization exceeding $1.0 billion for 30 consecutive trading days prior to the earliest of (a) February 12, 2024, (b) the sale of 4-AB or (c) the sale of Agenus. In connection with our acquisition of PhosImmune in December 2015, we issued

1,631,521 shares of our common stock to the shareholders of PhosImmune and other third parties having a fair market value of approximately $7.4 million at closing. In addition, we may be obligated in the future to pay certain contingent milestones payments, payable at our election in cash or shares of our common stock of up to $35.0 million in the aggregate. If we elect to pay any of these contingent milestones in shares, we are obligated to file registration statements covering any such shares. The market price of our common stock may decrease based on the expectation of such sales.

As of December 31, 2020, warrants to purchase approximately 1,950,000 shares of our common stock with a weighted average exercise price per share of $4.89 were outstanding.

As of December 31, 2020, options to purchase 28,916,401 shares of our common stock with a weighted average exercise price per share of $3.70 were outstanding. These options are subject to vesting that occurs over a period of up to four years following the date of grant. As of December 31, 2020, we had 14,997,220 vested options and 886,816 non-vested shares outstanding.

As of December 31, 2020, our outstanding shares of Series A-1 Convertible Preferred Stock were convertible into 333,333 shares of our common stock.

As of December 31, 2020, our outstanding shares of Series C-1 Convertible Preferred Stock were convertible into 12,459,000 shares of our common stock.

We may issue additional common stock, preferred stock, restricted stock units, or securities convertible into or exchangeable for our common stock. Furthermore, substantially all shares of common stock for which our outstanding stock options or warrants are exercisable are, once they have been purchased, eligible for immediate sale in the public market. The issuance of additional common stock, preferred stock, restricted stock units, or securities convertible into or exchangeable for our common stock or the exercise of stock options or warrants would dilute existing investors and could adversely affect the price of our securities. In addition, such securities may have rights senior to the rights of securities held by existing investors.

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 certificate of incorporation and bylaws contain provisions that could make it more difficult for a third party to acquire us without the consent of our Board of Directors. Our certificate of incorporation provides for a staggered board and removal of directors only for cause. Accordingly, stockholders may elect only a minority of our Board at any annual meeting, which may have the effect of delaying or preventing changes in management. In addition, under our certificate of incorporation, our Board of Directors may issue additional shares of preferred stock and determine the terms of those shares of stock without any further action by our stockholders. Our issuance of additional preferred stock could make it more difficult for a third party to acquire a majority of our outstanding voting stock and thereby effect a change in the composition of our Board of Directors. Our certificate of incorporation also provides that our stockholders may not take action by written consent. Our bylaws require advance notice of stockholder proposals and director nominations and permit only our president or a majority of the Board of Directors to call a special stockholder meeting. These provisions may have the effect of preventing or hindering attempts by our stockholders to replace our current management. In addition, Delaware law prohibits a corporation from engaging in a business combination with any holder of 15% or more of its capital stock until the holder has held the stock for three years unless, among other possibilities, the board of directors approves the transaction. Our Board of Directors may use this provision to prevent changes in our management. Also, under applicable Delaware law, our Board of Directors may adopt additional anti-takeover measures in the future.

These anti-takeover provisions and other provisions in our certificate of incorporation and bylaws could make it more difficult for stockholders or potential acquirers 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 our stockholders and other stockholders to elect directors of their choosing or cause us to take other corporate actions they 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.

We have broad discretion in the use of our existing cash, cash equivalents and investments and may not use them effectively.

Our management has broad discretion in the application of our cash, cash equivalents and investments. Because of the number and variability of factors that will determine our use of our cash, cash equivalents and investments, their ultimate use may vary substantially from their currently intended use. Our management might not apply our cash, cash equivalents and investments in ways that ultimately increase the value of our stockholders investment. The failure by our management to apply these funds effectively could harm our business. Pending their use, we may invest our cash in short-term, investment- grade, interest-bearing securities. These investments may not yield a favorable return to our stockholders. If we do not use our resources in ways that enhance stockholder value, we may fail to achieve expected financial results, which could cause our stock price to decline.

If securities or industry analysts do not continue to 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 depends in part on the research and reports that securities or industry analysts publish about us or our business. 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.

Item 1B. *Unresolved Staff Comments*

None.

Item 2. *Properties*

We lease our main research and development, manufacturing and corporate offices in Lexington, Massachusetts occupying approximately 82,000 square feet. This lease agreement terminates in August 2023 with an option to renew for one additional ten-year period.

We own a manufacturing facility of approximately 24,000 square feet in Berkeley, California that is used in the production and manufacture of antibody product candidates.

In November 2020, we entered into a lease for a building containing approximately 84,000 square feet in Emeryville, California for cGMP manufacturing space for our anticipated commercial antibody manufacturing requirements, as well as laboratory and office space. This lease terminates in December 2036 with the option to renew for two additional ten-year terms.

We also lease research and office facilities in Cambridge, United Kingdom. This lease terminates in November 2025.

We believe substantially all of our property and equipment is in good condition and that we have sufficient capacity to meet our current operational needs. We do not anticipate experiencing significant difficulty in retaining occupancy of any of our research and development, manufacturing or office facilities and will do so through lease renewals prior to expiration or through replacing them with equivalent facilities.

Item 3. *Legal Proceedings*

We are not party to any material legal proceedings.

Item 4. *Mine Safety Disclosures*

Not applicable.

PART II

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

Our common stock is currently listed on The Nasdaq Capital Market under the symbol "AGEN." As of March 3, 2021, there were 389 holders of record and 33,891 beneficial holders of our common stock.

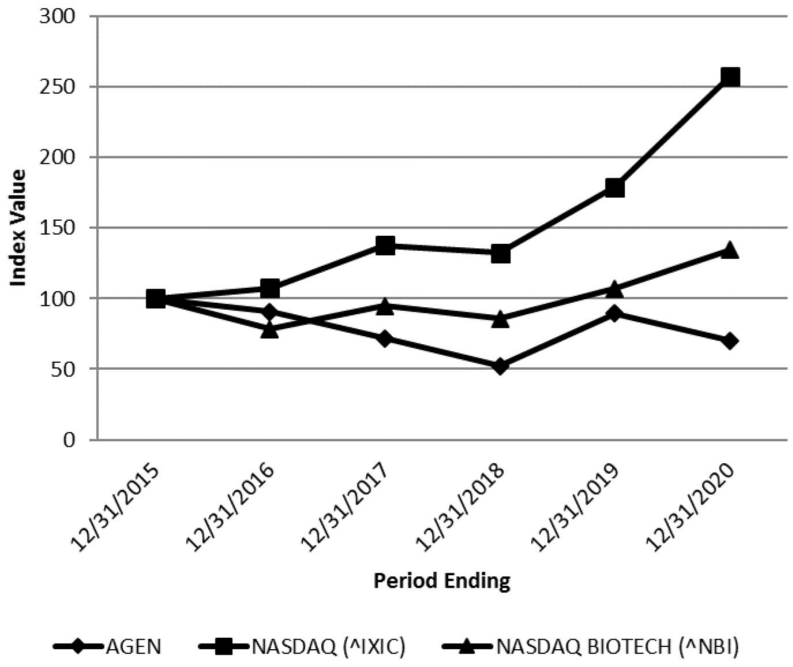
We have never paid cash dividends on our common stock, and we do not anticipate paying any cash dividends in the foreseeable future. We currently intend to retain future earnings, if any, for the future operation and expansion of our business. Any future payment of dividends on our common stock will be at the discretion of our Board of Directors and will depend upon, among other things, our earnings, financial condition, capital requirements, level of indebtedness, and other factors that our Board of Directors deem relevant.

Stock Performance

The following graph shows the cumulative total stockholder return on our common stock over the period spanning December 31, 2015 to December 31, 2020, as compared with that of the Nasdaq Stock Market (U.S. Companies) Index and the Nasdaq Biotechnology Index, based on an initial investment of $100 in each on December 31, 2015. Total stockholder return is measured by dividing share price change plus dividends, if any, for each period by the share price at the beginning of the respective period and assumes reinvestment of dividends.

This stock performance graph shall not be deemed "filed" with the SEC or subject to Section 18 of the Exchange Act, nor shall it be deemed incorporated by reference in any of our filings under the Securities Act of 1933, as amended (the "Securities Act").

**COMPARISON OF CUMULATIVE TOTAL RETURN OF AGENUS INC.,
NASDAQ STOCK MARKET (U.S. COMPANIES) INDEX
AND NASDAQ BIOTECHNOLOGY INDEX**



	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020
Agenus Inc.	100.00	90.75	71.81	52.42	89.65	70.04
Nasdaq Stock Market (U.S. Companies) Index	100.00	107.50	137.86	132.51	179.19	257.38
Nasdaq Biotechnology Index	100.00	78.32	94.81	85.97	106.95	134.42

Item 6. ***Selected Financial Data***

We have derived the condensed consolidated balance sheet data set forth below as of December 31, 2020 and 2019, and the condensed consolidated statement of operations data for each of the years in the three-year period ended December 31, 2020, from our audited consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

You should read the selected condensed consolidated financial data in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations," our consolidated financial statements, and the notes to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

Changes in cash, cash equivalents, and short-term investments, total current assets, total assets, total current liabilities, long-term debt and stockholders' deficit in the periods presented below include the effects of the receipt of net proceeds from our debt offerings, equity offerings, royalty monetization transactions, the exercise of stock options, and employee stock purchases that totaled approximately $187.1 million, $31.6 million, $291.2 million, $81.5 million, and $3.4 million in the years ended December 31, 2020, 2019, 2018, 2017, and 2016, respectively.

	For the Year Ended December 31,				
	2020	2019	2018	2017	2016
	(in thousands except per share data)				
Condensed Consolidated Statement of Operations Data:					
Revenue	$ 88,170	$ 150,048	$ 36,784	$ 42,877	$ 22,573
Operating expenses:					
Cost of service revenue	(2,349)	—	—	—	—
Research and development	(142,617)	(168,339)	(124,600)	(116,125)	(94,971)
General and administrative	(59,218)	(46,041)	(37,340)	(33,741)	(33,126)
Contingent purchase price consideration fair value adjustment	(1,221)	(5,805)	1,335	3,188	(1,953)
Operating loss	(117,235)	(70,137)	(123,821)	(103,801)	(107,477)
Loss on modification of debt	(2,720)	—	—	—	—
Loss on early extinguishment of debt	—	—	(10,767)	—	—
Non-operating income (expense)	(1,858)	28	(2,183)	1,977	(2,202)
Interest expense, net	(61,078)	(41,451)	(25,273)	(18,868)	(17,316)
Net loss	(182,891)	(111,560)	(162,044)	(120,692)	(126,995)
Dividends on Series A-1 convertible preferred stock	(209)	(208)	(207)	(206)	(204)
Less: net loss attributable to non-controlling interest	(1,977)	(3,903)	(2,352)	—	—
Net loss attributable to Agenus Inc. common stockholders	$ (181,123)	$ (107,865)	$ (159,899)	$ (120,898)	$ (127,199)
Net loss attributable to Agenus Inc. common stockholders per common share, basic and diluted	$ (1.05)	$ (0.80)	$ (1.44)	$ (1.23)	$ (1.46)
Weighted average number of Agenus Inc. common shares outstanding, basic and diluted	172,504	134,982	110,772	98,415	87,070

	As of December 31,				
	2020	2019	2018	2017	2016
	(in thousands)				
Condensed Consolidated Balance Sheet Data:					
Cash, cash equivalents and short-term investments	$ 99,871	$ 61,808	$ 53,054	$ 60,187	$ 76,437
Total current assets	113,783	86,536	74,808	73,554	91,312
Total assets	214,514	155,335	136,401	138,402	156,986
Total current liabilities	129,884	122,209	68,062	56,438	40,851
Long-term debt, less current portion	18,879	13,380	13,212	142,385	130,542
Series C-1 convertible preferred stock	26,917	26,917	39,879	—	—
Total stockholders' (deficit) equity	(211,498)	(231,337)	(174,546)	(75,816)	(39,126)

(1) 2019 total assets reflect the adoption of ASC 842 and includes approximately $7.4 million in operating lease right-of-use assets.

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

Overview

Agenus Inc. (including its subsidiaries, collectively referred to as "Agenus," the "Company," "we," "us," and "our") is a clinical-stage immuno-oncology ("I-O") company advancing an extensive pipeline of immune checkpoint antibodies, adoptive cell therapies and neoantigen vaccines, to fight cancer and infections. Our business is designed to drive success in I-O through speed, innovation and effective combination therapies. We believe that combination therapies and a deep understanding of each patient's cancer will drive substantial expansion of the patient population benefiting from current I-O therapies. In addition to a diverse pipeline, we have assembled fully integrated end-to-end capabilities including novel target discovery, antibody generation, cell line development and current good manufacturing practice manufacturing. We believe that these fully integrated capabilities enable us to produce novel candidates on timelines that are shorter than the industry standard. Leveraging our science and capabilities, we have forged important partnerships to advance our innovation.

We are developing a comprehensive I-O portfolio driven by the following platforms and programs, which we intend to utilize individually and in combination:

- our multiple antibody discovery platforms, including our proprietary display technologies, designed to drive the discovery of future CPM antibody candidates;
- our antibody candidate programs, including our CPM programs;
- our vaccine programs, including Prophage™, AutoSynVax™ and PhosPhoSynVax™;
- our saponin-based vaccine adjuvants, principally our QS-21 Stimulon™ adjuvant, or QS-21 Stimulon; and
- our cell therapy subsidiary, AgenTus Therapeutics, Inc., which is designed to drive the discovery of future adoptive cell therapy, or "living drugs" programs.

We assess development, commercialization and partnering strategies for each of our product candidates periodically based on several factors, including pre-clinical and clinical trial results, competitive positioning and funding requirements and resources. Our anti-CTLA-4 and anti-PD-1 programs (zalifrelimab and balstilimab, respectively) are in late phase clinical trials designed to support BLA filings under the FDA accelerated approval pathway. We announced interim data from these trials in February, March and September 2020. We initiated the rolling submission of our BLA for balstilimab monotherapy in September 2020 to treat 2nd line cervical cancer. We expect to complete this BLA filing in the first half of 2021, and to solidify our strategy for the combination filing in the same indication after the monotherapy filing is accepted by the FDA. In June 2020, we entered into a license and collaboration agreement (the "Betta License Agreement") with Betta Pharmaceuticals Co., Ltd. ("Betta"), pursuant to which we granted Betta an exclusive license to develop, manufacture and commercialize balstilimab and zalifrelimab in Greater China. Under the terms of the Betta License Agreement, we received $15.0 million upfront and are eligible to receive up to $100.0 million in milestone payments plus royalties on any future sales in Greater China. In connection with this transaction, we also entered into a stock purchase agreement with Betta and a wholly-owned subsidiary of Betta ("Betta HK"), pursuant to which we agreed to sell to Betta HK 4,962,779 shares of Agenus common stock for $4.03 per share, or an aggregate purchase price of approximately $20.0 million. The closing under the stock purchase agreement occurred in July 2020.

We have formed collaborations with companies such as Gilead Sciences, Inc. ("Gilead"), Incyte Corporation ("Incyte"), Merck Sharpe & Dohme ("Merck") and Recepta Biopharma SA ("Recepta"). Through these alliances, as well as our own internal programs, we currently have more than a dozen antibody programs in pre-clinical or clinical development.

Pursuant to our collaboration agreement with Incyte, we have exclusively licensed to Incyte monospecific antibodies targeting GITR, OX40, TIM-3 and LAG-3, which Incyte is currently advancing in various clinical trials, as well as an additional undisclosed target that Incyte is advancing in preclinical studies. Under the terms of our agreement, Incyte is responsible for all future development expenses, and we are eligible to receive up to an additional $500.0 million in potential milestone payments plus royalties on any future sales. Pursuant to our collaboration and license agreement with Merck, we exclusively licensed to Merck a monospecific antibody targeting ILT4, which Merck is advancing in a Phase 2 clinical trial. Under the terms of our agreement, Merck is responsible for all future development expenses, and we are eligible to receive up to an additional $85.0 million in potential milestone payments plus royalties on any future sales. In September 2018, we, through our wholly-owned subsidiary, Agenus Royalty Fund, LLC, entered into a royalty purchase agreement (the "XOMA Royalty Purchase Agreement") with XOMA (US) LLC ("XOMA"). Pursuant to the terms of the XOMA Royalty Purchase Agreement, XOMA purchased 33% of all future royalties and 10% of all future milestone payments that we are entitled to receive from Incyte and Merck, net of certain of our obligations to a third party. After taking into account our obligations under the XOMA Royalty Purchase Agreement, as of December 31, 2020, we remain eligible to receive up to $450.0 million and $76.5 million in potential development, regulatory and commercial milestones from Incyte and Merck, respectively.

In December 2018, we entered into a series of agreements with Gilead to collaborate on the development and commercialization of up to five novel I-O therapies (the "Gilead Collaboration Agreements"). Pursuant to the Gilead Collaboration Agreements, Gilead received worldwide exclusive rights to our bispecific antibody, AGEN1423 (now GS-1423), as well as the exclusive option to exclusively license AGEN1223, a bispecific antibody, and AGEN2373, a monospecific antibody. All three assets have entered clinical development. In November 2020, Gilead elected to return AGEN1423 to us and to voluntarily terminate the license agreement effective as of February 4, 2021. The option agreements remain in place, and we are responsible for developing each program up to the option decision points, at which time Gilead may acquire exclusive rights to the programs on option exercise. For either, but not both, of the option programs, we have the right to opt-in to share Gilead's development and commercialization costs in the United States in exchange for a profit (loss) share on a 50:50 basis and revised milestone payments. Pursuant to the terms of the Gilead option agreements, we remain eligible to receive up to $100.0 million in option exercise fees and, if exercised, up to an additional $1.0 billion in aggregate milestone payments, as well as royalties on any future sales.

Our QS-21 Stimulon adjuvant is partnered with GlaxoSmithKline ("GSK") and is a key component in multiple GSK vaccine programs. These programs are in various stages, with the most advanced being GSK's shingles vaccine, Shingrix. In October 2017, GSK's shingles vaccine was approved in the United States by the FDA. In January 2018, we entered into a Royalty Purchase Agreement with Healthcare Royalty Partners III, L.P. and certain of its affiliates (together, "HCR"), pursuant to which HCR purchased 100% of our worldwide rights to receive royalties from GSK on GSK's sales of vaccines containing our QS-21 Stimulon adjuvant. We do not incur clinical development costs for products partnered with GSK. We were also entitled to receive up to $40.35 million in milestone payments from HCR based on sales of GSK's vaccines as follows: (i) $15.1 million upon reaching $2.0 billion last-twelve-months net sales any time prior to 2024 (the "First HCR Milestone") and (ii) $25.25 million upon reaching $2.75 billion last-twelve-months net sales any time prior to 2026 (the "Second HCR Milestone"). We received the First HCR Milestone after GSK's net sales of Shingrix for the twelve months ended December 31, 2019 exceeded $2.0 billion, and we remain eligible to receive the Second HCR Milestone.

Our business activities include product research and development, intellectual property prosecution, manufacturing, regulatory and clinical affairs, corporate finance and development activities, and support of our collaborations. Our product candidates require clinical trials and approvals from regulatory agencies, as well as acceptance in the marketplace. Part of our strategy is to develop and commercialize some of our product candidates by continuing our existing arrangements with academic and corporate collaborators and licensees and by entering into new collaborations.

Our subsidiary AgenTus Therapeutics is focused on the development of unmodified iNKT cell therapies for the treatment of cancer and other life-threatening illnesses. In May 2020 and June 2020, the FDA accepted IND applications for agenT-797, an allogeneic iNKT therapy, for the treatment of patients with hematological malignancies, including multiple myeloma and B cell lymphoma, and COVID-19-realted pneumonia, respectively. In November 2020, AgenTus dosed its first COVID-19 patient with agenT-797, and trials for hematological malignancies are expected to commence in the second quarter of 2021. AgenTus licenses intellectual property assets from Agenus and has its own management and governance.

Our common stock is currently listed on The Nasdaq Capital Market under the symbol "AGEN."

Our research and development expenses for the years ended December 31, 2020, 2019, and 2018, were $142.6 million, $168.3 million, and $124.6 million, respectively. We have incurred significant losses since our inception. As of December 31, 2020, we had an accumulated deficit of $1.47 billion. We are likely to continue to incur losses until we become a commercial company generating profits. Although we plan to launch our first commercial product in 2021, if approved, we do not expect to be profitable in 2021.

During the past five years, we have successfully financed our operations through corporate partnerships, advance royalty sales and the sale of equity. Based on our current plans and projections, we believe that our cash resources of $99.9 million as of December 31, 2020, plus additional funding we anticipate from corporate events, will be sufficient to satisfy our liquidity requirements through the end of the year and into 2022. We are presently in financing, partnership, and out licensing discussions which, if consummated, could extend our cash resources further into and beyond 2022. Management continues to address the Company's liquidity position and has the flexibility to adjust spending as needed in order to preserve liquidity. In March 2020, in response to the COVID-19 pandemic, we streamlined our organization, which included a headcount reduction; our CEO, Dr. Garo Armen, elected to receive his base salary in stock rather than cash for the remainder of 2020 and through the first half of 2021. We continuously evaluate the likelihood of success of our programs. As such, our decisions to continue to fund or eliminate funding of each of our programs are predicated on these determinations, on an ongoing basis. We expect our potential sources of funding to include: (1) collaborations, out-licensing and/or partnering opportunities for our portfolio programs and product candidates with multiple parties (2) renegotiating third party agreements, (3) selling assets, (4) securing additional debt financing and/or (5) selling equity securities.

Historical Results of Operations

The comparison of 2019 to 2018 results has been omitted from this Form 10-K but can be found in our Form 10-K for the year ended December 31, 2019 – "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" filed on March 16, 2020.

Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019

Research and development revenue

We recognized research and development ("R&D") revenue of approximately $35.9 million and $99.8 million during the years ended December 31, 2020 and 2019, respectively. R&D revenues for the year ended December 31, 2020, primarily consisted of $12.3 million related to the recognition of deferred revenue earned under our Gilead Collaboration Agreements, $13.9 million related to the recognition of an upfront fee under our Betta License Agreement and $9.0 million related to the recognition of a milestone under the Merck Agreement. R&D revenues for the year ended December 31, 2019, primarily consisted of amounts earned under our Gilead Collaboration Agreement, including $65.5 million related to the recognition of an upfront license fee and $20.6 million related to the recognition of deferred revenue related to research and development services, a $10.0 million upfront license fee from our UroGen License Agreement, as well as amounts earned under our Incyte Collaboration Agreement, including $1.7 million related to the reimbursement of development costs. During the years ended December 31, 2020 and 2019, we recorded R&D revenue of $12.3 million and $22.7 million, respectively, from the recognition of deferred revenue.

Non-cash royalty revenue related to the sale of future royalties

In January 2018, we sold 100% of our worldwide rights to receive royalties from GSK on sales of GSK's vaccines containing our QS-21 Stimulon adjuvant to HCR. As described in Note 18 to our Consolidated Financial Statements, this transaction has been recorded as a liability that amortizes over the estimated life of our Royalty Purchase Agreement with HCR. As a result of this liability accounting, even though the royalties are remitted directly to HCR, we record these royalties from GSK as revenue. During the years ended December 31, 2020 and 2019, we recognized approximately $46.5 million and $30.4 million in non-cash royalty revenue, respectively, related to our agreement with GSK.

Research and development expense

R&D expense include the costs associated with our internal research and development activities, including compensation and benefits, occupancy costs, clinical manufacturing costs, contract research organization costs, costs of consultants, and related administrative costs. R&D expense decreased 15% to $142.6 million for the year ended December 31, 2020 from $168.3 million for the year ended December 31, 2019. Decreased expenses in the year ended December 31, 2020 primarily relate to a $19.9 million decrease in third-party services and other related expenses largely due to the timing of expenses related to the advancement of our antibody programs and a $9.7 million decrease in expenses attributable to the activities of our subsidiaries. These decreases were partially offset by a $0.9 million increase in personnel related expenses, a $2.5 million increase in facility expenses and a $0.4 million increase in other research and development expenses.

General and administrative expense

General and administrative ("G&A") expense consists primarily of personnel costs, facility expenses, and professional fees. G&A expense increased 29% to $59.2 million for the year ended December 31, 2020 from $46.0 million for the year ended December 31, 2019. Increased general and administrative expense expenses in the year ended December 31, 2020 primarily relate to a $6.5 million increase in professional fees, a $4.7 million increase in expenses attributable to the activities of our subsidiaries and a $2.1 million increase in other general and administrative expenses.

Contingent purchase price consideration fair value adjustment

Contingent purchase price consideration fair value adjustment represents the change in the fair value of our contingent purchase price consideration during the year ended December 31, 2020, which mainly resulted from changes in our market capitalization and share price and changes in the credit spread since each reporting period end. The fair value of our contingent purchase price considerations is mainly based on estimates from a Monte Carlo simulation of our market capitalization and share price.

Non-operating income (expense)

Non-operating expense increased $1.9 million for the year ended December 31, 2020, from income of $28,000 for the year ended December 31, 2019, to expense of $1.9 million for the year ended December 31, 2020, primarily due to our increased foreign currency exchange losses in 2020 compared to gains in 2019.

Interest expense, net

Interest expense, net increased to $61.1 million for the year ended December 31, 2020 from $41.5 million for the year ended December 31, 2019, due to increased non-cash interest recorded in connection with our Royalty Purchase Agreement with HCR.

Inflation

We believe that inflation has not had a material adverse effect on our business, results of operations, or financial condition to date.

Research and Development Programs

For the year ended December 31, 2020, our R&D programs consisted largely of our CPM antibody programs as indicated in the following table (in thousands).

Research and Development Program	Product	For the Year Ended December 31, 2020	2019	2018	Prior to 2018	Total
Antibody programs*	Various	$ 118,200	$ 126,400	$ 97,011	$ 256,288	$ 597,899
Heat shock proteins for cancer	Prophage and ASV	1,076	13,235	13,235	335,890	363,436
Vaccine adjuvant	QS-21 Stimulon	304	872	211	14,098	15,485
Cell therapies and other research and development programs	Various	23,037	27,832	14,143	78,342	143,354
Total research and development expenses		$ 142,617	$ 168,339	$ 124,600	$ 684,618	1,120,174

* Prior to 2014, costs were incurred by 4-AB, which we acquired in February 2014.

Research and development program costs include compensation and other direct costs plus an allocation of indirect costs, based on certain assumptions and our review of the status of each program. Our product candidates are in various stages of development and significant additional expenditures will be required if we start new clinical trials, encounter delays in our programs, apply for regulatory approvals, continue development of our technologies, expand our operations, and/or bring our product candidates to market. The total cost of any particular clinical trial is dependent on a number of factors such as trial design, length of the trial, number of clinical sites, number of patients, and trial sponsorship. The process of obtaining and maintaining regulatory approvals for new therapeutic products is lengthy, expensive, and uncertain. Because of the current stage of our product candidates, among other factors, we are unable to reliably estimate the cost of completing our research and development programs or the timing for bringing such programs to various markets or substantial partnering or out-licensing arrangements, and, therefore, when, if ever, material cash inflows are likely to commence. Active programs involving QS-21 Stimulon depend on our licensee successfully completing clinical trials, successfully manufacturing QS-21 Stimulon to meet demand, obtaining regulatory approvals and successfully commercializing product candidates containing QS-21 Stimulon.

Product Development Portfolio

Antibody Discovery Platforms and CPM Programs

Checkpoint antibodies regulate immune response against pathogens that invade the body and are achieving positive outcomes in a number of cancers that were untreatable only a few years ago. Two classes of checkpoint targets include:

1. inhibitory checkpoints that help suppress an immune response in order to prevent excessive immune reaction resulting in undesired inflammation and/or auto-immunity, and
2. stimulatory checkpoints that can enhance or amplify an antigen-specific immune response.

We possess a suite of antibody discovery platforms that are designed to drive the discovery of future CPM antibody candidates. We are planning to employ a variety of techniques to identify and optimize monospecific and multispecific antibody candidates, internally.

We and our partners currently have more than fifteen antibody programs in pre-clinical or clinical development, which include our anti-CTLA-4, zalifrelimab, and anti-PD-1, balstilimab, programs (both partnered with Recepta for certain South America territories and Betta in Greater China), our next generation anti-CTLA-4 antibody (AGEN1181), an IgG1 anti-CTLA-4 antagonist, our anti-CD137 (AGEN2373) and our bispecific antibody designed to deplete regulatory T cells (AGEN1223), both of which Gilead has an exclusive option to license exclusively, and the following antibody programs all partnered with Incyte: anti-GITR (INCAGN1876), anti-OX40 (INCAGN1949), anti-LAG3 (INCAGN2385) and anti-TIM3 (INCAGN2390). For additional information regarding our antibody discovery platforms and checkpoint antibody program, please read Part I-Item 1. “Business” of this Annual Report on Form 10-K.

Prophage Vaccine Candidates

Prophage (HSPPC-96), is an autologous cancer vaccine therapy derived from cancer tissues that are surgically removed from an individual patient designed to contain a broad sampling of potentially antigenic mutant proteins to educate the patient’s immune system to seek out and destroy cancer. Prophage in combination with pembrolizumab (Keytruda®) is advancing in a Phase 2 clinical trial collaboration with the National Cancer Institute (“NCI”). The trial is being conducted by the Brain Tumor Trials Collaborative, led by Dr. Mark Gilbert, Chief of the Neuro-Oncology Branch at the NCI Center for Cancer Research with product provided by Agenus and Merck. The trial is ongoing. For additional information regarding regulatory risks and uncertainties, please read the risks identified under Part I-Item 1A. “Risk Factors” of this Annual Report on Form 10-K.

Neoantigen Vaccine Platforms

Our neoantigen off-the-shelf vaccine platforms include: (i) individualized AutoSynVax™ (ASV™), which targets the unique antigens expressed by a patient’s own tumor, and (ii) off-the-shelf (or pre-manufactured) PhosphoSynVax™ (PSV™), which targets antigens expressed across patients and tumors, potentially enabling us to treat broader categories of patients.

Our neoantigen vaccines are designed with unique features, intending to confer important advantages: (1) proprietary methods to develop an effective and relevant “Blueprint” of immunogenic neoantigens for each patient; (2) HSPs to efficiently deliver neoantigens to the right immune cells to activate an anti-cancer immune response. Our proprietary linker technology is designed to enable efficient neoantigen loading for a robust cancer specific immune response with significantly less peptide; and (3) QS-21 Stimulon® adjuvant, a potent immune stimulator now in GSK’s commercial shingles vaccine, Shingrix. Our vaccines are powered by our proprietary adjuvant, QS-21 Stimulon™ and have demonstrated safety in Phase 1 clinical trials with data reported at the Next Gen Immuno-oncology congress. For additional information regarding regulatory risks and uncertainties, please read the risks identified under Part I-Item 1A. “Risk Factors” of this Annual Report on Form 10-K.

QS-21 Stimulon Adjuvant

QS-21 Stimulon is an adjuvant, which is a substance added to a vaccine or other immunotherapy that is intended to enhance an immune response to the target antigens. QS-21 Stimulon is a natural product, a triterpene glycoside, or saponin, purified from the bark of the Chilean soapbark tree, Quillaja saponaria. QS-21 Stimulon has the ability to stimulate an antibody-mediated immune response and has also been shown to activate cellular immunity. It has become a key component in the development of investigational preventive vaccine formulations across a wide variety of diseases. These studies have been carried out by academic institutions and pharmaceutical companies in the United States and internationally. A number of these studies have shown QS-21 Stimulon to be significantly more effective in stimulating immune responses than aluminum hydroxide or aluminum phosphate, the adjuvants most commonly used in approved vaccines in the United States today. In January 2019, we announced that the Bill & Melinda Gates Foundation awarded us a grant to develop an alternative, plant cell culture-based manufacturing process to ensure the continuous future supply of QS-21 Stimulon adjuvant, which we are pursuing in partnership with Phyton Biotech. For additional information regarding QS-21 Stimulon, please read Part I-Item 1. “Business” of this Annual Report on Form 10-K.

Liquidity and Capital Resources

We have incurred annual operating losses since inception, and we had an accumulated deficit of $1.47 billion as of December 31, 2020. We expect to incur significant losses over the next several years as we continue development of our technologies and product candidates, manage our regulatory processes, initiate and continue clinical trials, and prepare for potential commercialization

of products. To date, we have financed our operations primarily through the sale of equity and debt securities, and interest income earned on cash, cash equivalents, and short-term investment balances. From our inception through December 31, 2020, we have raised aggregate net proceeds of approximately $1.43 billion through the sale of common and preferred stock, the exercise of stock options and warrants, proceeds from our Employee Stock Purchase Plan, royalty monetization transactions, and the issuance of convertible and other notes.

We maintain an effective registration statement (the “Registration Statement”), covering an unlimited amount of common stock, preferred stock, warrants, debt securities and units. The Registration Statement includes prospectuses covering the offer, issuance and sale of up to 100 million shares of our common stock from time to time in “at-the-market offerings” pursuant to an At Market Issuance Sales Agreement (the “New Sales Agreement”) with B. Riley FBR, Inc. as our sales agent. We sold approximately 50.9 million and 9.1 million shares of our common stock pursuant to both a prior At Market Issuance Sales Agreement with B. Riley FBR, Inc. and the New Sales Agreement during the year ended December 31, 2020 and the period of January 1, 2021 through March 12, 2021, respectively, for aggregate net proceeds totaling $188.2 million. As of March 12, 2021, we had approximately 73.2 million shares that remained available for sale under the New Sales Agreement.

As of December 31, 2020, we had debt outstanding of $20.0 million in principal. In February 2020, we amended $13.5 million of the 2015 Subordinated Notes, extending the due date by three years to February 2023. The remaining $0.5 million of the 2015 Subordinated Notes were repaid in February 2020. In April 2020, we repaid an additional $0.5 million of the 2015 Subordinated Notes, leaving $13.0 million outstanding. In May 2020, we received $6.2 million under the Paycheck Protection Program of the Coronavirus Aid, Relief and Economic Security Act of 2020 (the “CARES Act”) which is classified as debt in our condensed consolidated balance sheet as we cannot yet determine if the amount will be partially or fully forgiven.

Our cash and cash equivalents at December 31, 2020 were $99.9 million, an increase of $38.1 million from December 31, 2019.

During the past five years, we have successfully financed our operations through corporate partnerships, advance royalty sales and the sale of equity. Based on our current plans and projections, we believe that our cash resources of $99.9 million as of December 31, 2020, plus additional funding we anticipate from corporate events, will be sufficient to satisfy our liquidity requirements through the end of the year and into 2022. We are presently in financing, partnership, and out licensing discussions which, if consummated, could extend our cash resources further into and beyond 2022. Until we are successful in our efforts for capital infusion through these transactions or other financing options, and because the completion of such transactions is not entirely within our control, in accordance with accounting guidance we are required to disclose that substantial doubt exists about our ability to continue as a going concern for a period of one year after the date of filing of this Annual Report on Form 10-K.

Management continues to address the Company’s liquidity position and has the flexibility to adjust spending as needed in order to preserve liquidity. In March 2020, in response to the COVID-19 pandemic, we streamlined our organization, which included a headcount reduction; our CEO, Dr. Garo Armen, elected to receive his base salary in stock rather than cash for the remainder of 2020 and through the first half of 2021. We continuously evaluate the likelihood of success of our programs. As such, our decisions to continue to fund or eliminate funding of each of our programs are predicated on these determinations, on an ongoing basis. We expect our potential sources of funding to include: (1) collaborations, out-licensing and/or partnering opportunities for our portfolio programs and product candidates with multiple parties (2) renegotiating third party agreements, (3) selling assets, (4) securing additional debt financing and/or (5) selling equity securities.

Our future cash requirements include, but are not limited to, supporting clinical trial and regulatory efforts and continuing our other research and development programs. Since inception, we have entered into various agreements with contract manufacturers, institutions, and clinical research organizations (collectively "third party providers") to perform pre-clinical activities and to conduct and monitor our clinical studies. Under these agreements, subject to the enrollment of patients and performance by the applicable third-party provider, we have estimated our total payments to be $385.5 million over the term of the related activities. Through December 31, 2020, we have expensed $318.7 million as research and development expenses and $308.1 million has been paid under these agreements. The timing of expense recognition and future payments related to these agreements is subject to the enrollment of patients and performance by the applicable third-party provider. We plan to enter into additional agreements with third party providers and we anticipate significant additional expenditures will be required to initiate and advance our various programs.

Part of our strategy is to develop and commercialize some of our product candidates by continuing our existing collaboration arrangements with academic and collaboration partners and licensees and by entering into new collaborations. As a result of our collaboration agreements, we will not completely control the efforts to attempt to bring those product candidates to market. For example, our collaboration with Incyte for the development, manufacture and commercialization of CPM antibodies against certain targets is managed by a joint steering committee, which is controlled by Incyte.

Net cash used in operating activities for the years ended December 31, 2020 and 2019 was $139.1 million and $18.7 million, respectively. Our future ability to generate cash from operations will depend on achieving regulatory approval and market acceptance of our product candidates, achieving benchmarks as defined in existing collaboration agreements, and our ability to enter into new collaborations. Please see the "Note Regarding Forward-Looking Statements" of this Annual Report on Form 10-K and the risks highlighted under Part I-Item 1A. "Risk Factors" of this Annual Report on Form 10-K.

The table below summarizes our contractual obligations as of December 31, 2020 (in thousands).

		Payments by Period			
	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
Long-term debt (1)	$ 16,111	$ 1,929	$ 14,182	$ —	$ —
Operating leases (2)	123,406	4,397	16,619	16,752	85,638
Finance leases	871	804	67	—	—
Total	$ 140,388	$ 7,130	$ 30,868	$ 16,752	$ 85,638

(1) Includes fixed interest payments and excludes amounts received under the Payroll Protection Program. See Note 17 of the notes to our consolidated financial statements contained elsewhere in this Annual Report on Form 10-K for further description of our debt.

(2) The leases and subleases for our properties expire at various times between 2022 and 2036. See Note 16 of the notes to our consolidated financial statements contained elsewhere in this Annual Report on Form 10-K for further description of our leases.

Off-Balance Sheet Arrangements

At December 31, 2020, we had no off-balance sheet arrangements.

Critical Accounting Policies and Estimates

The SEC defines "critical accounting policies" as those that require the application of management's most difficult, subjective, or complex judgments, often as a result of the need to make estimates about the effect of matters that are inherently uncertain and may change in subsequent periods.

The preparation of consolidated financial statements in conformity with U.S. generally accepted accounting principles requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. We base those estimates on historical experience and on various assumptions that are believed to be reasonable under the circumstances. Actual results could differ from those estimates.

The following listing is not intended to be a comprehensive list of all of our accounting policies. Our significant accounting policies are described in Note 2 of the notes to our consolidated financial statements contained elsewhere in this Annual Report on Form 10-K. In many cases, the accounting treatment of a particular transaction is dictated by U.S. generally accepted accounting principles, with no need for our judgment in its application. There are also areas in which our judgment in selecting an available alternative would not produce a materially different result. We have identified the following as our critical accounting policies.

Revenue Recognition

In May 2014, the Financial Accounting Standards Board (the "FASB") issued Accounting Standards Update ("ASU") No. 2014-09, Revenue from Contracts with Customers (Topic 606), which supersedes existing revenue recognition guidance. We adopted ASU 2014-09 and its related amendments (collectively known as "ASC 606") on January 1, 2018 using the modified retrospective method- i.e., by recognizing the cumulative effect of initially applying ASC 606 as an adjustment to the opening balance of equity at January 1, 2018. The adoption of ASC 606 represented a change in accounting principle that more closely aligned revenue recognition with the delivery of our goods and services and provided financial statement readers with enhanced disclosures.

In accordance with ASC 606, revenue is recognized when a customer obtains control of promised goods or services. The amount of revenue recognized reflects the consideration to which we expect to be entitled to receive in exchange for these goods and services. Refer to Note 2 to our consolidated financial statements included within Item 8 of this Annual Report on Form 10-K for a more detailed description of our application of ASC 606.

Non-cash Interest Expense on Liability Related to Sale of Future Royalties

In January 2018 we entered into the HCR Royalty Purchase Agreement with HCR. Pursuant to the terms of the HCR Royalty Purchase Agreement, we sold to HCR 100% of our worldwide rights to receive royalties from GSK on sales of GSK's vaccines containing our QS-21 Stimulon adjuvant. Although we sold all of our rights to receive royalties on sales of GSK's vaccines containing QS-21, as a result of our obligation to HCR, we recorded the proceeds from this transaction as a liability on our consolidated balance sheet that will be amortized using the interest method over the estimated life of the HCR Royalty Purchase Agreement. As a result, we impute interest on the transaction and record non-cash interest expense at the estimated interest rate. Our estimate of the interest rate under the agreement is based on the amount of royalty payments to be received by HCR over the life of the arrangement. We periodically assess the expected royalty payments to HCR from GSK using a combination of historical results and forecasts from market data sources. To the extent such payments are greater or less than our initial estimates or the timing of such payments is materially different than our original estimates, we will prospectively adjust the amortization of the liability. There are a number of factors that could materially affect the amount and timing of royalty payments from GSK, all of which are not within our control. Such factors include, but are not limited to, changing standards of care, the introduction of competing products, manufacturing or other delays, biosimilar competition, patent protection, adverse events that result in governmental health authority imposed restrictions on the use of the drug products, significant changes in foreign exchange rates, and other events or circumstances that could result in reduced royalty payments from GSK, all of which would result in a reduction of non-cash royalty revenues and the non-cash interest expense over the life of the HCR Royalty Purchase Agreement. Conversely, if sales of GSK's vaccines containing QS-21 are more than expected, the non-cash royalty revenues and the non-cash interest expense recorded by us would be greater over the life of the HCR Royalty Purchase Agreement.

Recent Accounting Pronouncements

Refer to Note 2 to our consolidated financial statements included within Item 8 of this Annual Report on Form 10-K for a description of recent accounting pronouncements applicable to our business.

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

Our primary market risk exposure is foreign currency exchange rate risk. International revenues and expenses are generally transacted by our foreign subsidiary and are denominated in local currency. Approximately 0.3% and 2% of our cash used in operations for the years ended December 31, 2020 and 2019, respectively, was from a foreign subsidiary. Additionally, in the normal course of business, we are exposed to fluctuations in interest rates as we seek debt financing and invest excess cash. We are also exposed to foreign currency exchange rate fluctuation risk related to our transactions denominated in foreign currencies. We do not currently employ specific strategies, such as the use of derivative instruments or hedging, to manage these exposures. Our currency exposures vary but are primarily concentrated in the Euro, Swiss Franc and British Pound, in large part due to our subsidiaries, AgenTus Therapeutics SA, a company formally with operations in Belgium, Agenus Switzerland a company formally with operations in Switzerland and Agenus UK Limited, with operations in England. During the year ended December 31, 2020, there has been no material change with respect to our approach toward those exposures.

We had cash and cash equivalents at December 31, 2020 of $99.9 million, which are exposed to the impact of interest and foreign currency exchange rate changes, and our interest income fluctuates as interest rates change. Due to the short-term nature of our investments in money market funds, our carrying value approximates the fair value of these investments at December 31, 2020, however, we are subject to investment risk.

We invest our cash and cash equivalents in accordance with our investment policy. The primary objectives of our investment policy are to preserve principal, maintain proper liquidity to meet operating needs, and maximize yields. We review our investment policy annually and amend it as deemed necessary. Currently, the investment policy prohibits investing in any structured investment vehicles and asset-backed commercial paper. Although our investments are subject to credit risk, our investment policy specifies credit quality standards for our investments and limits the amount of credit exposure from any single issue, issuer, or type of investment. We do not invest in derivative financial instruments. Accordingly, we do not believe that there is currently any material market risk exposure with respect to derivatives or other financial instruments that would require disclosure under this item.

Item 8. ***Financial Statements and Supplementary Data***

INDEX TO FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Agenus Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Agenus Inc. and subsidiaries (the Company) as of December 31, 2020 and 2019, the related consolidated statements of operations and comprehensive loss, convertible preferred stock and stockholders' deficit, and cash flows for each of the years in the three-year period ended December 31, 2020, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated March 16, 2021 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Notes 2(q) and 16 to the consolidated financial statements, the Company changed its method of accounting for leases as of January 1, 2019 due to the adoption of Accounting Standards Update No. 2016-02, Leases (Topic 842), as amended.

Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has suffered recurring losses from operations and has a net capital deficiency that raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the 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 audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

License and Stock Purchase Agreement with Betta Pharmaceuticals Co., LTD

As discussed in Note 14 to the consolidated financial statements, the Company recognized research and development revenue of $13.9 million from the license agreement with Betta Pharmaceuticals Co., LTD. The Company identified the following performance obligations (1) the license of balstilimab and zalifrelimab, (2) the obligation to complete manufacturing technology transfer activities. The transaction price was allocated to each distinct performance obligation using a relative standalone selling price. The Company determined the estimated standalone selling price of the licenses by applying a risk adjusted, net present value, estimate of future cashflows.

We identified the evaluation of the standalone selling price of the license as a critical audit matter. Subjective auditor judgment was involved in evaluating certain revenue assumptions used to estimate the standalone selling price of the license. Specifically, the assumptions related to the probability of success in clinical development and the timeline to commercial approval, required subjective auditor judgment, because there was limited observable data available. In addition, specialized skills and knowledge were required to evaluate the discount rate assumption.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of an internal control in the Company's revenue process, specifically the control over the determination of the assumptions described above. We evaluated the revenue projections used to develop the Company's estimated standalone selling price of the license by considering their consistency with data from internal and external sources including market and industry data. We assessed the probabilities of success in clinical development and timeline to commercial approval by corroborating to success rates and timelines in scientific journals relevant for the biotechnology industry. We involved valuation professionals with specialized skill and knowledge, who assisted in evaluating the Company's discount rate by comparing it against a discount rate that was independently developed based on the capital structure and cost of guideline companies.

/s/ KPMG LLP

We have served as the Company's auditor since 1997.

Boston, Massachusetts
March 16, 2021

AGENUS INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(Amounts in thousands, except share and per share amounts)

	December 31, 2020	December 31, 2019
ASSETS		
Cash and cash equivalents	$ 99,871	$ 61,808
Accounts Receivable	1,157	16,293
Prepaid expenses	10,746	7,420
Other current assets	2,009	1,015
Total current assets	113,783	86,536
Property, plant and equipment, net of accumulated amortization and depreciation of $47,201 and $42,861 at December 31, 2020 and 2019, respectively	26,790	26,326
Operating lease right-of-use assets	33,480	7,364
Goodwill	25,452	23,188
Acquired intangible assets, net of accumulated amortization of $11,841 and $9,431 at December 31, 2020 and 2019, respectively	10,886	10,504
Other long-term assets	4,123	1,417
Total assets	$ 214,514	$ 155,335
LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT		
Current portion, long-term debt	$ 833	$ 646
Current portion, liability related to sale of future royalties and milestones	57,362	45,961
Current portion, deferred revenue	17,186	29,174
Current portion, operating lease liabilities	1,950	1,347
Accounts payable	17,015	13,564
Accrued liabilities	29,057	31,332
Other current liabilities	6,481	185
Total current liabilities	129,884	122,209
Long-term debt, net of current portion	18,879	13,380
Liability related to sale of future royalties and milestones, net of current portion	176,263	175,408
Deferred revenue, net of current portion	28,282	27,705
Operating lease liabilities, net of current portion	34,065	8,020
Contingent purchase price consideration	10,208	8,843
Other long-term liabilities	1,514	4,190
Commitments and contingencies (Note 20)		
CONVERTIBLE PREFERRED STOCK		
Preferred stock, par value $0.01 per share; 5,000,000 shares authorized:		
Series C-1 convertible preferred stock; 12,459 shares designated, issued, and outstanding at December 31, 2020 and 2019	26,917	26,917
STOCKHOLDERS' DEFICIT		
Series A-1 convertible preferred stock; 31,620 shares designated, issued, and outstanding at December 31, 2020 and 2019; liquidation value of $33,250 and $33,040 at December 31, 2020, and 2019, respectively	0	0
Common stock, par value $0.01 per share; 400,000,000 shares authorized; 196,090,980 shares and 137,818,068 shares issued at December 31, 2020 and 2019, respectively	1,961	1,378
Additional paid-in capital	1,257,502	1,059,583
Accumulated other comprehensive income (loss)	2,772	(1,324)
Accumulated deficit	(1,465,907)	(1,284,993)
Total stockholders' deficit attributable to Agenus Inc.	(203,672)	(225,356)
Non-controlling interest	(7,826)	(5,981)
Total stockholders' deficit	(211,498)	(231,337)
Total liabilities, convertible preferred stock and stockholders' deficit	$ 214,514	$ 155,335

See accompanying notes to consolidated financial statements.

AGENUS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
For the Years Ended December 31, 2020, 2019, and 2018
(Amounts in thousands, except per share amounts)

	2020	2019	2018
Revenue:			
Research and development	$ 35,915	$ 99,845	$ 19,475
Service revenue	4,619	—	—
Royalty sales milestone	—	15,100	—
Other revenue	91	4,679	—
Non-cash revenue related to the sale of future royalties and milestones	47,545	30,424	17,309
Total revenues	88,170	150,048	36,784
Operating expenses:			
Cost of service revenue	(2,349)	—	—
Research and development	(142,617)	(168,339)	(124,600)
General and administrative	(59,218)	(46,041)	(37,340)
Contingent purchase price consideration fair value adjustment	(1,221)	(5,805)	1,335
Operating loss	(117,235)	(70,137)	(123,821)
Other income (expense):			
Loss on modification of debt	(2,720)	—	—
Loss on early extinguishment of debt	—	—	(10,767)
Non-operating income (expense)	(1,858)	28	(2,183)
Interest expense, net	(61,078)	(41,451)	(25,273)
Net loss	(182,891)	(111,560)	(162,044)
Dividends on Series A-1 convertible preferred stock	(209)	(208)	(207)
Less: net loss attributable to non-controlling interest	(1,977)	(3,903)	(2,352)
Net loss attributable to Agenus Inc. common stockholders	$ (181,123)	$ (107,865)	$ (159,899)
Per common share data:			
Basic and diluted net loss attributable to Agenus Inc. common stockholders	$ (1.05)	$ (0.80)	$ (1.44)
Weighted average number of Agenus Inc. common shares outstanding:			
Basic and diluted	172,504	134,982	110,772
Other comprehensive income:			
Foreign currency translation gain	$ 4,096	$ 215	$ 630
Other comprehensive income	4,096	215	630
Comprehensive loss	$ (177,027)	$ (107,650)	$ (159,269)

See accompanying notes to consolidated financial statements.

AGENUS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
For the Years Ended December 31, 2020, 2019, and 2018
(Amounts in thousands)

	Series C-1 Convertible Preferred Stock		Series A-1 Convertible Preferred Stock		Common Stock						
	Number of Shares	Amount	Number of Shares	Par Value	Number of Shares	Par Value	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Non-controlling Interest	Accumulated Deficit	Total
Balance at December 31, 2017	—	—	32	0	101,706	1,017	951,812	(2,169)	—	(1,026,475)	$ (75,815)
Net loss	—	—	—	—	—	—	—	—	(2,352)	(159,692)	(162,044)
Other comprehensive loss	—	—	—	—	—	—	—	630	—		630
Adoption of ASC 606	—	—	—	—	—	—	—	—	—	8,856	8,856
AgenTus share distribution	—	—	—	—	—	—	—	—	274	—	274
Share-based compensation	—	—	—	—	—	—	7,351	—	—	—	7,351
Vesting of nonvested shares	—	—	—	—	53	1	(1)	—	—	—	—
Shares sold at the market	—	—	—	—	17,799	178	44,741	—	—	—	44,919
Issuance of Series C-1 convertible preferred stock, net of issuance costs of $122	18	39,879	—	—	—	—	—	—	—	—	—
Payment of consultant in shares	—	—	—	—	26	—	50	—	—	—	50
Exercise of stock options and employee share purchases	—	—	—	—	413	4	1,230	—	—	—	1,234
Balance at December 31, 2018	18	$ 39,879	32	$ 0	119,997	$ 1,200	$ 1,005,183	$ (1,539)	$ (2,078)	$ (1,177,311)	$ (174,545)

See accompanying notes to consolidated financial statements.

AGENUS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(Continued)
For the Years Ended December 31, 2020, 2019, and 2018
(Amounts in thousands)

	Series C-1 Convertible Preferred Stock		Series A-1 Convertible Preferred Stock		Common Stock						
	Number of Shares	Amount	Number of Shares	Par Value	Number of Shares	Par Value	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Non-controlling Interest	Accumulated Deficit	Total
Net loss	—	—	—	—	—	—	—	—	(3,903)	(107,657)	$ (111,560)
Other comprehensive loss	—	—	—	—	—	—	—	215	—	—	215
Adoption of ASC 842	—	—	—	—	—	—	—	—	—	(25)	(25)
Share-based compensation	—	—	—	—	—	—	9,892	—	—	—	9,892
Vesting of nonvested shares	—	—	—	—	130	1	(1)	—	—	—	—
Shares sold under stock purchase agreement	—	—	—	—	11,111	111	29,889	—	—	—	30,000
Conversion of Series C-1 convertible preferred stock	(6)	(12,962)	—	—	6,000	60	12,902	—	—	—	12,962
Payment of consultant in shares	—	—	—	—	29	—	81	—	—	—	81
Exercise of stock options and employee share purchases	—	—	—	—	552	6	1,637	—	—	—	1,643
Balance at December 31, 2019	12	$ 26,917	32	$ 0	137,819	$ 1,378	$ 1,059,583	$ (1,324)	$ (5,981)	$ (1,284,993)	$ (231,337)

See accompanying notes to consolidated financial statements.

AGENUS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(Continued)
For the Years Ended December 31, 2020, 2019, and 2018
(Amounts in thousands)

	Series C-1 Convertible Preferred Stock		Series A-1 Convertible Preferred Stock		Common Stock						
	Number of Shares	Amount	Number of Shares	Par Value	Number of Shares	Par Value	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Non-controlling Interest	Accumulated Deficit	Total
Net loss	—	—	—	—	—	—	—	—	(1,977)	(180,914)	(182,891)
Other comprehensive loss	—	—	—	—	—	—	—	4,096	—	—	4,096
Share-based compensation	—	—	—	—	—	—	10,121	—	—	—	10,121
Vesting of nonvested shares	—	—	—	—	166	2	(2)	—	—	—	—
Shares sold at the market	—	—	—	—	50,947	509	155,912	—	—	—	156,421
Shares sold under stock purchase agreement	—	—	—	—	4,963	50	19,950	—	—	—	20,000
Issuance of subsidiary shares to noncontrolling interest	—	—	—	—	—	—	2,242	—	132	—	2,374
Issuance of shares for business acquisition	—	—	—	—	405	4	896	—	—	—	900
Amendment of 2015 warrants and issuance of 2020 warrants	—	—	—	—	—	—	3,145	—	—	—	3,145
Payment of CEO payroll in shares	—	—	—	—	86	1	295	—	—	—	296
Payment of consultants in shares	—	—	—	—	208	2	906	—	—	—	908
Exercise of stock options and employee share purchases	—	—	—	—	1,499	15	4,454	—	—	—	4,469
Balance at December 31, 2020	12	$ 26,917	32	$ 0	196,093	$ 1,961	$ 1,257,502	$ 2,772	$ (7,826)	$ (1,465,907)	$ (211,498)

See accompanying notes to consolidated financial statements.

AGENUS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
For the Years Ended December 31, 2020, 2019, and 2018
(Amounts in thousands, except per share amounts)

	2020	2019	2018
Cash flows from operating activities:			
Net loss	$ (182,891)	$ (111,560)	$ (162,044)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	7,179	6,662	6,288
Share-based compensation	10,417	9,892	7,625
Non-cash royalty and milestone revenue	(47,545)	(30,424)	(17,309)
Non-cash interest expense	60,029	42,201	24,599
Donation of assets	622	—	—
Loss on disposal of assets	198	58	145
Change in fair value of contingent obligations	1,221	5,805	(1,335)
Loss on modification of debt	2,720	—	—
Loss on extinguishment of debt	—	—	10,767
Changes in operating assets and liabilities:			
Accounts receivable	16,187	(15,355)	196
Inventories	—	55	24
Prepaid expenses	(187)	11,792	(8,210)
Accounts payable	2,767	(234)	5,366
Deferred revenue	(11,464)	53,900	(397)
Accrued liabilities and other current liabilities	3,826	7,097	3,303
Other operating assets and liabilities	(2,175)	1,429	(113)
Net cash used in operating activities	(139,096)	(18,682)	(131,095)
Cash flows from investing activities:			
Proceeds from sale of plant and equipment	—	—	6
Purchases of plant and equipment	(3,466)	(4,657)	(3,597)
Cash paid for business acquisition, net	(975)	—	—
Net cash used in investing activities	(4,441)	(4,657)	(3,591)
Cash flows from financing activities:			
Net proceeds from sale of equity	176,421	30,000	44,919
Net proceeds from sale of C-1 Preferred Stock	—	—	39,879
Proceeds from employee stock purchases and option exercises	4,469	1,643	1,234
Proceeds from issuance of long-term debt	6,197	—	—
Proceeds from sale of future royalties	—	—	204,878
Transaction costs from sale of future royalties and milestones	—	—	(494)
Repayments of debt	(1,462)	—	(161,847)
Payment of finance lease obligation	(1,770)	(320)	(283)
Net cash provided by financing activities	183,855	31,323	128,286
Effect of exchange rate changes on cash	379	770	(733)
Net increase (decrease) in cash, cash equivalents and restricted cash	40,697	8,754	(7,133)
Cash, cash equivalents and restricted cash, beginning of period	61,808	53,054	60,187
Cash, cash equivalents and restricted cash, end of period	$ 102,505	$ 61,808	$ 53,054
Supplemental cash flow information:			
Cash paid for interest	$ 1,176	$ 1,224	$ 1,171
Supplemental disclosures - non-cash activities:			
Purchases of plant and equipment in accounts payable and accrued liabilities	$ 289	$ 1,242	$ 300
Issuance of common stock, $0.01 par value, in connection with business acquisition	900	—	—
Contingent purchase price consideration in connection with business acquisition	144	—	—
Issuance of common stock, $0.01 par value, in connection with payment to consultants	908	81	50

Issuance of subsidiary shares to noncontrolling interest	2,374	—	—
Lease right-of-use assets obtained in exchange for new operating lease liabilities	28,184	3,017	—
Lease right-of-use assets obtained in exchange for new finance lease liabilities	2,434	—	—

See accompanying notes to consolidated financial statements.

(1) Description of Business

Agenus Inc. (including its subsidiaries, collectively referred to as "Agenus," the "Company," "we," "us," and "our") is a clinical-stage immuno-oncology ("I-O") company advancing an extensive pipeline of immune checkpoint antibodies, adoptive cell therapies and neoantigen vaccines, to fight cancer and infections. Our business is designed to drive success in I-O through speed, innovation and effective combination therapies. We believe that combination therapies and a deep understanding of each patient's cancer will drive substantial expansion of the patient population benefiting from current I-O therapies. In addition to a diverse pipeline, we have assembled fully integrated end-to-end capabilities including novel target discovery, antibody generation, cell line development and current good manufacturing practice manufacturing. We believe that these fully integrated capabilities enable us to produce novel candidates on timelines that are shorter than the industry standard. Leveraging our science and capabilities, we have forged important partnerships to advance our innovation.

We are developing a comprehensive I-O portfolio driven by the following platforms and programs, which we intend to utilize individually and in combination:

- our multiple antibody discovery platforms, including our proprietary display technologies, designed to drive the discovery of future CPM antibody candidates;
- our antibody candidate programs, including our CPM programs;
- our vaccine programs, including Prophage™, AutoSynVax™ and PhosPhoSynVax™;
- our saponin-based vaccine adjuvants, principally our QS-21 Stimulon™ adjuvant, or QS-21 Stimulon; and
- our cell therapy subsidiary, AgenTus Therapeutics, Inc., which is designed to drive the discovery of future adoptive cell therapy, or "living drugs" programs.

Our business activities include product research and development, intellectual property prosecution, manufacturing, regulatory and clinical affairs, corporate finance and development activities, and support of our collaborations. Our product candidates require clinical trials and approvals from regulatory agencies, as well as acceptance in the marketplace. Part of our strategy is to develop and commercialize some of our product candidates by continuing our existing arrangements with academic and corporate collaborators and licensees and by entering into new collaborations.

Our cash and cash equivalents at December 31, 2020 were $99.9 million, an increase of $38.1 million from December 31, 2019.

We have incurred significant losses since our inception. As of December 31, 2020, we had an accumulated deficit of $1.47 billion. Although we plan to launch our first commercial product in 2021, if approved, we do not expect to be profitable in 2021.

During the past five years, we have successfully financed our operations through corporate partnerships, advance royalty sales and the sale of equity. Based on our current plans and projections, we believe that our cash resources of $99.9 million as of December 31, 2020, plus additional funding we anticipate from corporate events, will be sufficient to satisfy our liquidity requirements through the end of the year and into 2022. We are presently in financing, partnership, and out licensing discussions which, if consummated, could extend our cash resources further into and beyond 2022. Until we are successful in our efforts for capital infusion through these transactions or other financing options, and because the completion of such transactions is not entirely within our control, in accordance with accounting guidance we are required to disclose that substantial doubt exists about our ability to continue as a going concern for a period of one year after the date of filing of this Annual Report on Form 10-K.

The financial statements do not include any adjustments that might result from the outcome of this uncertainty. Accordingly, the financial statements have been prepared on a basis that assumes we will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the ordinary course of business.

Management continues to address the Company's liquidity position and has the flexibility to adjust spending as needed in order to preserve liquidity. In March 2020, in response to the COVID-19 pandemic, we streamlined our organization, which included a headcount reduction; our CEO, Dr. Garo Armen, elected to receive his base salary in stock rather than cash for the remainder of 2020 and through the first half of 2021. We continuously evaluate the likelihood of success of our programs. As such, our decisions to continue to fund or eliminate funding of each of our programs are predicated on these determinations, on an ongoing basis. We expect our potential sources of funding to include: (1) collaborations, out-licensing and/or partnering opportunities for our portfolio programs and product candidates with multiple parties (2) renegotiating third party agreements, (3) selling assets, (4) securing additional debt financing and/or (5) selling equity securities.

Research and development program costs include compensation and other direct costs plus an allocation of indirect costs, based on certain assumptions, and our review of the status of each program. Our product candidates are in various stages of development and significant additional expenditures will be required if we start new trials, encounter delays in our programs, apply for regulatory approvals, continue development of our technologies, expand our operations, and/or bring our product candidates to market. The eventual total cost of each clinical trial is dependent on a number of factors such as trial design, length of the trial, number of clinical sites, and number of patients. The process of obtaining and maintaining regulatory approvals for new therapeutic products is lengthy, expensive, and uncertain. Because many of our antibody and neoantigen vaccine programs are early stage, and because any further development of HSP-based vaccines is dependent on clinical trial results, among other factors, we are unable to reliably estimate the cost of completing our research and development programs or the timing for bringing such programs to various markets or substantial partnering or out-licensing arrangements, and, therefore, when, if ever, material cash inflows are likely to commence. We will continue to adjust our spending as needed in order to preserve liquidity.

(2) Summary of Significant Accounting Policies

(a) Basis of Presentation and Principles of Consolidation

The consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles and include the accounts of Agenus and our subsidiaries. All significant intercompany transactions and accounts have been eliminated in consolidation. Non-controlling interest in the consolidated financial statements represents the portion of two of our subsidiaries not 100% owned by Agenus.

(b) Segment Information

We are managed and currently operate as two segments. However, we have concluded that our two operating segments meet all three criteria required by Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) 280, *Segment Reporting* to be aggregated into one reportable segment. The aggregation of our two operating segments into one reportable segment is consistent with the objectives and basic principles of ASC 280. Our two operating segments have similar economic characteristics and are both similar with respect to the five qualitative characteristics specified in ASC 280. Accordingly, we do not have separately reportable segments as defined by ASC 280.

(c) Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. generally accepted accounting principles requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. We base those estimates on historical experience and on various assumptions that are believed to be reasonable under the circumstances. Actual results could differ from those estimates.

(d) Cash and Cash Equivalents

We consider all highly liquid investments purchased with maturities at acquisition of three months or less to be cash equivalents. Cash equivalents consist primarily of money market funds.

(e) Concentrations of Credit Risk

Financial instruments that potentially subject us to concentrations of credit risk are primarily cash equivalents, investments, and accounts receivable. We invest our cash, cash equivalents and short-term investments in accordance with our investment policy, which specifies high credit quality standards and limits the amount of credit exposure from any single issue, issuer, or type of investment. We carry balances in excess of federally insured levels; however, we have not experienced any losses to date from this practice.

(f) Accounts Receivable

Accounts receivable are amounts due from our collaboration partners and customers as a result of research and development and other services provided, and milestones achieved. We considered the need for an allowance for doubtful accounts and have concluded that no allowance was needed as of December 31, 2020 and 2019, as the estimated risk of loss on our accounts receivable was determined to be minimal.

(g) Property, Plant and Equipment

Property, plant and equipment, including software developed for internal use, are carried at cost. Depreciation is computed using the straight-line method over the estimated useful lives of the assets. Amortization of leasehold improvements is computed over the shorter of the lease term or estimated useful life of the asset. Additions and improvements are capitalized, while repairs and maintenance are charged to expense as incurred. Amortization and depreciation of plant and equipment was $5.1 million, $4.8 million, and $4.3 million, for the years ended December 31, 2020, 2019, and 2018, respectively.

(h) Fair Value of Financial Instruments

The estimated fair values of all our financial instruments approximate their carrying amounts in the consolidated balance sheets. The fair value of our outstanding debt is based on a present value methodology. The outstanding principal amount of our debt, including the current portion, was $20.0 million and $14.1 million at December 31, 2020 and 2019, respectively.

(i) Revenue Recognition

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, Revenue from Contracts with Customers (Topic 606), which supersedes existing revenue recognition guidance. We adopted ASU 2014-09 and its related amendments (collectively known as "ASC 606") on January 1, 2018 using the modified retrospective method- i.e., by recognizing the cumulative effect of initially applying ASC 606 as an adjustment to the opening balance of equity at January 1, 2018.

The adoption of ASC 606 resulted in a cumulative adjustment to decrease our accumulated deficit by $8.9 million at January 1, 2018, which included a $3.0 million decrease in current portion, deferred revenue and a $5.9 million decrease in deferred revenue, net of current portion. As a result of the adoption of ASC 606, research and development revenue on our consolidated statement of operations for the year ended December 31, 2018 was decreased by $3.2 million and on our December 31, 2018 consolidated balance sheet, deferred revenue, current portion, deferred revenue, net of current portion and accumulated deficit were decreased by $1.0 million, $4.7 million and $5.7 million, respectively. The change in revenue was primarily attributable to the change in recognition of an upfront fee related to the GSK License and Amended Supply Agreements. While the change in deferred revenue and accumulated deficit is mainly attributable to the change in the timing of revenue recognition for amounts received under the Incyte Collaboration Agreement and the reversal of the cumulative transition adjustment, respectively.

For the years ended December 31, 2020, 2019 and 2018, 16%, 60% and 43%, respectively, of our revenue was earned from one collaboration partner.

In accordance with ASC 606, revenue is recognized when a customer obtains control of promised goods or services. The amount of revenue recognized reflects the consideration to which we expect to be entitled to receive in exchange for these goods and services. To achieve this core principle, we apply the following five steps:

1) Identify the contract with the customer

A contract with a customer exists when (i) the Company enters into an enforceable contract with a customer that defines each party's rights regarding the goods or services to be transferred and identifies the related payment terms, (ii) the contract has commercial substance, and (iii) the Company determines that collection of substantially all consideration for goods and services that are transferred is probable based on the customer's intent and ability to pay the promised consideration. The Company applies judgment in determining the customer's intent and ability to pay, which is based on a variety of factors including the customer's historical payment experience, or in the case of a new customer, published credit and financial information pertaining to the customer.

2) Identify the performance obligations in the contract

Performance obligations promised in a contract are identified based on the goods and services that will be transferred to the customer that are both capable of being distinct, whereby the customer can benefit from the good or service either on its own or together with other available resources, and are distinct in the context of the contract, whereby the transfer of the good or service is separately identifiable from other promises in the contract. To the extent a contract includes multiple promised goods and services, the Company must apply judgment to determine whether promised goods and services are capable of being distinct and are distinct in the context of the contract. If these criteria are not met, the promised goods and services are accounted for as a combined performance obligation.

3) Determine the transaction price

The transaction price is determined based on the consideration to which the Company will be entitled in exchange for transferring goods and services to the customer. To the extent the transaction price includes variable consideration, the Company estimates the amount of variable consideration that should be included in the transaction price utilizing either the expected value method or the most likely amount method depending on the nature of the variable consideration. Variable consideration is included in the transaction price if, in the Company's judgment, it is probable that a significant future reversal of cumulative revenue under the contract will not occur. Any estimates, including the effect of the constraint on variable consideration, are evaluated at each reporting period for any changes. Determining the transaction price requires significant judgment, which is discussed in further detail for each of the Company's contracts with customers in Note 14.

4) Allocate the transaction price to performance obligations in the contract

If the contract contains a single performance obligation, the entire transaction price is allocated to the single performance obligation. Contracts that contain multiple performance obligations require an allocation of the transaction price to each performance obligation on a relative stand-alone selling price basis unless the transaction price is variable and meets the criteria to be allocated entirely to a performance obligation or to a distinct service that forms part of a single performance obligation. The consideration to be received is allocated among the separate performance obligations based on relative stand-alone selling prices. Determining the amount of the transaction price to allocate to each separate performance obligation requires significant judgement, which is discussed in further detail for each of the Company's contracts with customers in Note 14.

5) Recognize revenue when or as the Company satisfies a performance obligation

The Company satisfies performance obligations either over time or at a point in time. Revenue is recognized over time if either 1) the customer simultaneously receives and consumes the benefits provided by the entity's performance, 2) the entity's performance creates or enhances an asset that the customer controls as the asset is created or enhanced, or 3) the entity's performance does not create an asset with an alternative use to the entity and the entity has an enforceable right to payment for performance completed to date. If the entity does not satisfy a performance obligation over time, the related performance obligation is satisfied at a point in time by transferring the control of a promised good or service to a customer. Examples of control are using the asset to produce goods or services, enhance the value of other assets, settle liabilities, and holding or selling the asset. ASC 606 requires the Company to select a single revenue recognition method for the performance obligation that faithfully depicts the Company's performance in transferring control of the goods and services. The guidance allows entities to choose between two methods to measure progress toward complete satisfaction of a performance obligation:

1. Output methods - recognize revenue on the basis of direct measurements of the value to the customer of the goods or services transferred to date relative to the remaining goods or services promised under the contract (e.g. surveys of performance completed to date, appraisals of results achieved, milestones reached, time elapsed, and units of produced or units delivered); and

2. Input methods - recognize revenue on the basis of the entity's efforts or inputs to the satisfaction of a performance obligation (e.g., resources consumed, labor hours expended, costs incurred, or time elapsed) relative to the total expected inputs to the satisfaction of that performance obligation.

Licenses of intellectual property: If the license to the Company's intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, the Company recognizes revenue from non-refundable, up-front fees allocated to the license when the license is transferred to the customer and the customer is able to use and benefit from the license. For licenses that are bundled with other promises, the Company utilizes judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress for purposes of recognizing revenue from non-refundable, up-front fees. The Company evaluates the measure of progress each reporting period and, if necessary, adjusts the measure of performance and related revenue recognition.

Milestone payments: At the inception of each arrangement that includes development, regulatory or commercial milestone payments, the Company evaluates whether the milestones are considered probable of being reached and estimates the amount to be included in the transaction price. ASC 606 suggests two alternatives to use when estimating the amount of variable consideration: the expected value method and the most likely amount method. Under the expected value method, an entity considers the sum of probability-weighted amounts in a range of possible consideration amounts. Under the most likely amount method, an entity considers the single most likely amount in a range of possible consideration amounts. Whichever method is used, it should be consistently applied throughout the life of the contract; however, it is not necessary for the Company to use the same approach for all contracts. The Company uses the most likely amount method for development and regulatory milestone payments. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. The transaction price is then allocated to each performance obligation on a relative stand-alone selling price basis. The Company recognizes revenue as or when the performance obligations under the contract are satisfied. At the end of each subsequent reporting period, the Company re-

evaluates the probability or achievement of each such milestone and any related constraint, and if necessary, adjusts its estimates of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect revenues and earnings in the period of adjustment.

Royalties: For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, the Company recognizes revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied).

Up-front Fees: Depending on the nature of the agreement, up-front payments and fees may be recorded as deferred revenue upon receipt or when due and may require deferral of revenue recognition to a future period until the Company performs its obligations under these arrangements. Amounts payable to the Company are recorded as accounts receivable when the Company's right to consideration is unconditional. The Company does not assess whether a contract has a significant financing component if the expectation at contract inception is such that the period between payment by the customer and the transfer of the promised goods or services to the customer will be one year or less.

(j) Foreign Currency Transactions

Gains and losses from our foreign currency-based accounts and transactions, such as those resulting from the translation and settlement of receivables and payables denominated in foreign currencies, are included in the consolidated statements of operations within other income (expense). We do not currently use derivative financial instruments to manage the risks associated with foreign currency fluctuations. We recorded a foreign currency loss of $3.1 million for the year ended December 31, 2020, a foreign currency gain of $0.1 million for the year ended December 31, 2019, and a foreign currency loss of $2.2 million for the year ended December 31, 2018.

(k) Research and Development

Research and development expenses include the costs associated with our internal research and development activities, including salaries and benefits, share-based compensation, occupancy costs, clinical manufacturing costs, related administrative costs, and research and development conducted for us by outside advisors, such as sponsored university-based research partners and clinical study partners. We account for our clinical study costs by estimating the total cost to treat a patient in each clinical trial and recognizing this cost based on estimates of when the patient receives treatment, beginning when the patient enrolls in the trial. Research and development expenses also include the cost of clinical trial materials shipped to our research partners. Research and development costs are expensed as incurred.

(l) Share-Based Compensation

We account for share-based compensation in accordance with the provisions of ASC 718, *Compensation—Stock Compensation.* Share-based compensation expense is recognized based on the estimated grant date fair value. Compensation cost is recognized on a straight-line basis over the requisite service period of the award. Forfeitures are recognized as they occur. See Note 12 for a further discussion on share-based compensation.

(m) Income Taxes

Income taxes are accounted for under the asset and liability method with deferred tax assets and liabilities recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax basis and net operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which such items are expected to be reversed or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the consolidated statement of operations in the period that includes the enactment date. Deferred tax assets are recognized when they are more likely than not expected to be realized.

(n) Net Loss Per Share

Basic income and loss per common share are calculated by dividing the net loss attributable to common stockholders by the weighted average number of common shares outstanding (including common shares issuable under our Directors' Deferred Compensation Plan). Diluted income per common share is calculated by dividing net income attributable to common stockholders by the weighted average number of common shares outstanding (including common shares issuable under our Directors' Deferred Compensation Plan) plus the dilutive effect of outstanding instruments such as warrants, stock options, non-vested shares, convertible preferred stock, and convertible notes. Because we reported a net loss attributable to common stockholders for all periods presented, diluted loss per common share is the same as basic loss per common share, as the effect of utilizing the fully diluted share count would have reduced the net loss per common share. Therefore, the following potentially dilutive securities have been excluded from the computation of diluted weighted average shares outstanding as of December 31, 2020, 2019, and 2018, as they would be anti-dilutive:

	Year Ended		
	2020	2019	2018
Warrants	1,950	1,400	2,900
Stock options	28,916	27,164	18,614
Nonvested shares	887	2,120	2,214
Series A-1 convertible preferred stock	333	333	333
Series C-1 convertible preferred stock	12,459	12,459	18,459

(o) Goodwill

Goodwill represents the excess of cost over the fair value of net assets of businesses acquired. Goodwill is not amortized, but instead tested for impairment at least annually. Annually we assess whether there is an indication that goodwill is impaired, or more frequently if events and circumstances indicate that the asset might be impaired during the year. We perform our annual impairment test as of October 31 of each year. The first step of our impairment analysis compares the fair value of our reporting units to their net book value to determine if there is an indicator of impairment. We operate as two reporting units. ASC 350, *Intangibles, Goodwill and Other* states that if the carrying value of a reporting unit is negative, the second step of the impairment test shall be performed to measure the amount of impairment loss, if any, if qualitative factors indicate that it is more likely than not that a goodwill impairment exists. No goodwill impairment has been recognized for the periods presented.

(p) Long-lived Assets

If required based on certain events and circumstances, recoverability of assets to be held and used, other than goodwill and intangible assets not being amortized, is measured by a comparison of the carrying amount of an asset to the undiscounted future net cash flows expected to be generated by the asset or asset group. If the carrying amount of an asset exceeds its estimated future undiscounted cash flows, an impairment charge is recognized for the amount by which the carrying amount of the asset exceeds the fair value of the asset. Authoritative guidance requires companies to separately report discontinued operations and extends that reporting to a component of an entity that either has been disposed of (by sale, abandonment, or in a distribution to owners) or is classified as held for sale. Assets to be disposed of are reported at the lower of the carrying amount or fair value less costs to sell.

(q) Leases

In February 2016, the Financial Accounting Standards Board ("FASB") issued ASU 2016-02, Leases (Topic 842) ("ASC 842") which supersedes Topic 840, Leases ("ASC 840"). We adopted ASC 842 on January 1, 2019 using the alternative transition method and recorded a cumulative effect adjustment to beginning retained earnings without restating prior periods. Accordingly, all financial information and disclosures for periods before January 1, 2019 continue to be presented under the requirements of ASC 840. We elected the package of practical expedients, which allowed us to carry forward our historical lease classification, our assessment of whether a contract is or contains a lease and our initial direct costs for any leases that existed prior to adoption of the new standard.

At the inception of an agreement, we determine whether the contract contains a lease. If a lease is identified in such arrangement, we recognize a right-of-use asset and liability on our consolidated balance sheet and determine whether the lease should be classified as a finance or operating lease. We have elected not to recognize assets or liabilities for leases with lease terms of 12 months or less.

A lease qualifies as a finance lease if any of the following criteria are met at the inception of the lease: (i) there is a transfer of ownership of the leased asset by the end of the lease term, (ii) we hold an option to purchase the leased asset that we are reasonably certain to exercise, (iii) the lease term is for a major part of the remaining economic life of the leased asset, (iv) the present value of the sum of lease payments equals or exceeds substantially all of the fair value of the leased asset, or (v) the nature of the leased asset is

specialized to the point that it is expected to provide the lessor no alternative use at the end of the lease term. All other leases are recorded as operating leases.

Our leases commence when the lessor makes the asset available for our use. Finance and operating lease right-of-use assets and liabilities are recognized at the lease commencement date. Lease liabilities are recognized as the present value of the lease payments over the lease term, net of any future lease incentives to be received, using the discount rate implicit in the lease. If the implicit rate is not readily determinable, as is the case with all our current leases, we utilize our incremental borrowing rate at the lease commencement date. Right-of-use assets are recognized based on the amount of the lease liability, adjusted for any advance lease payments paid, initial direct costs incurred, or lease incentives received prior to commencement. Right-of-use assets are subject to evaluation for impairment or disposal on a basis consistent with other long-lived assets.

Operating lease payments are expensed using the straight-line method as an operating expense over the lease term, unless the right-of-use asset reflects impairment. We will then recognize the amortization of the right-of-use asset on a straight-line basis over the remaining lease term with rent expense still included in operating expense in our condensed consolidated statement of operations.

Finance lease assets are amortized to depreciation expense using the straight-line method over the shorter of the useful life of the related asset or the lease term, unless the lease includes a provision that either (i) results in the transfer of ownership of the underlying asset at the end of the lease term or (ii) includes a purchase option whose exercise is reasonably certain. In either of these instances, the right-of-use asset is amortized over the useful life of the underlying asset. Finance lease payments are bifurcated into (i) a portion that is recorded as imputed interest expense and (ii) a portion that reduces the finance lease liability.

We do not separate lease and non-lease components for any of our current asset classes when determining which lease payments to include in the calculation of its lease assets and liabilities. Variable lease payments are expensed in the period incurred. If a lease includes an option to extend or terminate the lease, we reflect the option in the lease term if it is reasonably certain the option will be exercised. Our right of use assets and lease liabilities generally exclude periods covered by renewal options and include periods covered by early termination options (based on our conclusion that it is not reasonably certain that we will exercise such options).

We account for the sublease of space in our main Lexington, Massachusetts facility from the perspective of a lessor. Our sublease is classified as an operating lease. We record sublease income as a reduction of operating expense.

Operating leases are recorded in “Operating lease right-of-use assets”, “Current portion, operating lease liabilities” and “Operating lease liabilities, net of current portion”, while finance leases are recorded in “Property, plant and equipment, net”, “Other current liabilities” and “Other long-term liabilities” on our condensed consolidated balance sheet.

(r) Recent Accounting Pronouncements

Recently Issued and Adopted

In August 2018, the Financial Accounting Standards Board (“FASB”) issued ASU No. 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement (“ASU 2018-13”). The amendments in ASU 2018-13 modify the disclosure requirements of fair value measurements. Certain disclosures are required to be applied on a retrospective basis and others on a prospective basis. We adopted the standard on January 1, 2020. The adoption did not have a material impact on our financial statement disclosures.

In November 2018, the FASB issued ASU No. 2018-18, Collaborative Arrangements (Topic 808): Clarifying the Interaction between Topic 808 and Topic 606, Revenue from Contracts with Customers, (“ASC 606”) (“ASU 2018-18”). ASU 2018-18 (1) clarifies that certain transactions between collaborative arrangement participants should be accounted for under ASC 606, when the collaborative arrangement participant is a customer in the context of a unit of account, (2) adds unit-of-account guidance in ASC 808 to align with ASC 606 when an entity is assessing whether the collaborative arrangement, or a part of the arrangement, is within the scope of ASC 606, and (3) precludes presenting transactions together with revenue when those transactions involve collaborative arrangement participants that are not directly related to third parties and are not customers. We adopted the standard on January 1, 2020. The adoption did not have a material impact on our consolidated financial statements.

Recently Issued, Not Yet Adopted

In January 2017, the FASB issued ASU 2017-04, Intangibles – Goodwill and Other (Topic 350) that will eliminate the requirement to calculate the implied fair value of goodwill to measure a goodwill impairment charge. Instead, an impairment charge will be based on the excess of a reporting unit’s carrying amount over its fair value. The guidance is effective for the Company in the

first quarter of fiscal 2023. Early adoption is permitted. We do not anticipate the adoption of this guidance to have a material impact on our consolidated financial statements, absent any goodwill impairment.

In December 2019, the FASB issued ASU No. 2019-12, Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes ("ASU 2019-12"). ASU 2019-12 enhances and simplifies multiple aspects of the income tax accounting guidance in ASC 740. The standard will be effective for fiscal years beginning after December 15, 2020, and interim periods within those fiscal years, with early adoption permitted. We are currently evaluating the impact of adoption of ASU 2019-12 on our consolidated financial statements.

No other new accounting pronouncement issued or effective during the year ended December 31, 2020 had or is expected to have a material impact on our consolidated financial statements or disclosures.

(3) Business Acquisitions

4-Antibody

On January 10, 2014, we entered into a Share Exchange Agreement (the "Share Exchange Agreement") providing for our acquisition of all of the outstanding capital stock of Agenus Switzerland Inc. (formerly known as 4-Antibody AG) ("4-AB"), from the shareholders of 4-AB (the "4-AB Shareholders"). Contingent milestone payments of up to $40.0 million (the "contingent purchase price consideration"), payable in cash or shares of our common stock at our option, are due to the 4-AB Shareholders as follows: (i) $20.0 million upon our market capitalization exceeding $300.0 million for 10 consecutive trading days prior to the earliest of (a) the fifth anniversary of the Closing Date (b) the sale of the 4-AB or (c) the sale of Agenus; (ii) $10.0 million upon our market capitalization exceeding $750.0 million for 30 consecutive trading days prior to the earliest of (a) the tenth anniversary of the Closing Date (b) the sale of 4-AB, or (c) the sale of Agenus, and (iii) $10.0 million upon our market capitalization exceeding $1.0 billion for 30 consecutive trading days prior to the earliest of (a) the tenth anniversary of the Closing Date, (b) the sale of 4-AB, or (c) the sale of Agenus. During January 2015, the first milestone noted above was achieved.

PhosImmune Inc.

On December 23, 2015 (the "PhosImmune Closing Date"), we entered into a Purchase Agreement with PhosImmune Inc., a privately-held Virginia corporation ("PhosImmune"), the securityholders of PhosImmune (the "PhosImmune Securityholders") and Fanelli Haag PLLC, as representative of the PhosImmune Securityholders providing for the acquisition of all outstanding securities of PhosImmune. Contingent milestone payments up to $35.0 million payable in cash and/or stock at our option are due as follows: (i) $5.0 million upon the closing trading price of our common stock equals or exceeds $8.00 for 60 consecutive trading days prior to the earlier of (a) the fifth anniversary of the PhosImmune Closing Date (this milestone expired unachieved on December 23, 2020) or (b) the sale of Agenus; (ii) $15.0 million if the closing trading price of our common stock equals or exceeds $13.00 for 60 consecutive trading days prior to the earlier of (a) the tenth anniversary of the PhosImmune Closing Date or (b) the sale of Agenus; and (iii) $15.0 million if the closing trading price of our common stock equals or exceeds $19.00 for 60 consecutive trading days prior to the earlier of (a) the tenth anniversary of the PhosImmune Closing Date or (b) the sale of Agenus.

(4) Goodwill and Acquired Intangible Assets

The following table sets forth the changes in the carrying amount of goodwill for year ended December 31, 2020 (in thousands):

Balance, December 31, 2019	$	23,188
Effect of foreign currency		1,470
Addition of goodwill related to business acquisition		794
Balance, December 31, 2020	$	25,452

Acquired intangible assets consisted of the following at December 31, 2020 and 2019 (in thousands):

	As of December 31, 2020			
	Amortization period (years)	Gross carrying amount	Accumulated amortization	Net carrying amount
Intellectual Property	7-15 years	$ 17,013	$ (10,112)	$ 6,901
Trademarks	4-4.5 years	1,310	(980)	330
Other	2-7 years	2,272	(749)	1,523
In-process research and development	Indefinite	2,132	—	2,132
Total		$ 22,727	$ (11,841)	$ 10,886

	As of December 31, 2019			
	Amortization period (years)	Gross carrying amount	Accumulated amortization	Net carrying amount
Intellectual Property	7-15 years	$ 16,584	$ (8,044)	$ 8,540
Trademarks	4.5 years	834	(834)	—
Other	2-6 years	572	(553)	19
In-process research and development	Indefinite	1,945	—	1,945
Total		$ 19,935	$ (9,431)	$ 10,504

The weighted average amortization period of our finite-lived intangible assets is approximately 9 years. Amortization expense for the years ended December 31, 2020, 2019, and 2018 was $2.4 million, $2.0 million and $2.0 million, respectively. Amortization expense related to acquired intangibles is estimated at $2.2 million for each of 2021 and 2022, $1.7 million for 2023 and $0.6 million for each of 2024 and 2025.

The acquired IPR&D asset relates to the six pre-clinical antibody programs acquired in the Agenus Switzerland transaction. IPR&D acquired in a business combination is capitalized at fair value until the underlying project is completed and is subject to impairment testing. Once the project is completed, the carrying value of IPR&D is amortized over the estimated useful life of the asset. Post-acquisition research and development expenses related to the acquired IPR&D are expensed as incurred.

(5) Investments

Cash Equivalents

Cash equivalents consisted of the following as of December 31, 2020 and 2019 (in thousands):

	December 31, 2020		December 31, 2019	
	Cost	Estimated Fair Value	Cost	Estimated Fair Value
Institutional Money Market Funds	$ 64,256	$ 64,256	$ 55,258	$ 55,258
U.S. Treasury Bills	20,000	20,000	—	—
Total	$ 84,256	$ 84,256	$ 55,258	$ 55,258

As a result of the short-term nature of our investments, there were minimal unrealized holding gains or losses as of December 31, 2020, 2019 and 2018.

All the investments listed above have been classified as cash equivalents on our consolidated balance sheet as of December 31, 2020 and 2019, respectively.

(6) Restricted Cash

As of December 31, 2020, we maintained non-current restricted cash of $2.6 million. This amount is included within “Other long-term assets” in our consolidated balance sheets and is solely comprised of a letter of credit required under the lease of our facility in Emeryville, CA. We did not maintain restricted cash as of December 31, 2019 and 2018.

The following table provides a reconciliation of cash, cash equivalents and restricted cash that agrees to the total of the aforementioned amounts shown in our consolidated statements of cash flows as of December 31, 2020, 2019 and 2018, respectively (in thousands):

	2020	2019	2018
Cash and cash equivalents	$ 99,871	$ 61,808	$ 53,054
Restricted cash	2,634	—	—
Cash, cash equivalents and restricted cash	$ 102,505	$ 61,808	$ 53,054

(7) Property, Plant and Equipment

Property, plant and equipment, net as of December 31, 2020 and 2019 consist of the following (in thousands):

	2020	2019	Estimated Depreciable Lives
Land	$ 2,230	$ 2,230	Indefinite
Building and building improvements	5,630	5,624	35 years
Furniture, Fixtures, and other	5,866	6,394	3 to 10 years
Laboratory, manufacturing and transportation equipment	22,855	20,880	4 to 10 years
Leasehold improvements	28,390	25,350	2 to 12 years
Software and computer equipment	9,020	8,709	3 years
	73,991	69,187	
Less accumulated depreciation and amortization	(47,201)	(42,861)	
Total	$ 26,790	$ 26,326	

(8) Income Taxes

We are subject to taxation in the U.S. and in various state, local, and foreign jurisdictions. We remain subject to examination by U.S. Federal, state, local, and foreign tax authorities for tax years 2017 through 2020. With a few exceptions, we are no longer subject to U.S. Federal, state, local, and foreign examinations by tax authorities for the tax year 2016 and prior. However, net operating losses from the tax year 2016 and prior would be subject to examination if and when used in a future tax return to offset taxable income. Our policy is to recognize income tax related penalties and interest, if any, in our provision for income taxes and, to the extent applicable, in the corresponding income tax assets and liabilities, including any amounts for uncertain tax positions.

As of December 31, 2020, we had available net operating loss carryforwards of $733.1 million and $237.0 million for Federal and state income tax purposes, respectively, which are available to offset future Federal and state taxable income, if any, $136.7 million of these Federal net operating loss carryforwards do not expire, while the remaining net operating loss carryforwards expire between 2021 and 2038. Our ability to use these net operating losses may be limited by change of control provisions under Internal Revenue Code Section 382 and may expire unused. In addition, we have $8.7 million and $6.7 million of Federal and state research and development credits, respectively, available to offset future taxable income. These Federal and state research and development credits expire between 2021 and 2033 and 2021 and 2029, respectively. Additionally, we have $394,000 of state investment tax credits, available to offset future taxable income and expire between 2021 and 2024. We also have foreign net operating loss carryforwards, which do not expire, available to offset future foreign taxable income of $9.6 million in the United Kingdom, $11.4 million in Belgium, $667,000 in Ireland, and $289,000 in Hong Kong. The potential impacts of such provisions are among the items considered and reflected in management’s assessment of our valuation allowance requirements.

The tax effect of temporary differences and net operating loss and tax credit carryforwards that give rise to significant portions of the deferred tax assets and deferred tax liabilities as of December 31, 2020 and 2019 are presented below (in thousands).

	2020	2019
Deferred tax assets:		
U.S. Federal and State net operating loss carryforwards	$ 168,786	$ 143,126
Foreign net operating loss carryforwards	5,302	4,096
Research and development tax credits	14,314	16,364
Share-based compensation	4,846	4,774
Intangible Assets	39,477	38,710
Interest expense carryforward	7,114	3,893
Deferred Revenue	58,796	47,456
Lease Liability	8,389	2,002
Other	4,768	3,974
Total deferred tax assets	311,792	264,395
Less: valuation allowance	(303,747)	(262,228)
Net deferred tax assets	8,045	2,167
Foreign intangible assets	(1,052)	(1,009)
Right of use asset	(7,852)	(1,599)
Other	(192)	(165)
Deferred tax liabilities	(9,096)	(2,773)
Net deferred tax liability	$ (1,051)	$ (606)

In assessing the realizability of deferred tax assets, we consider whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which the net operating loss and tax credit carryforwards can be utilized or the temporary differences become deductible. We consider projected future taxable income and tax planning strategies in making this assessment. In order to fully realize the deferred tax asset, we will need to generate future taxable income sufficient to utilize net operating losses prior to their expiration. Based upon our history of not generating taxable income due to our business activities focused on product development, we believe that it is more likely than not that deferred tax assets will not be realized through future earnings. Accordingly, a valuation allowance has been established for deferred tax assets which will not be offset by the reversal of deferred tax liabilities. The valuation allowance on the deferred tax assets increased by $41.5 million and $7.9 million during the years ended December 31, 2020 and 2019, respectively.

Income tax benefit was nil for the years ended December 31, 2020, 2019 and 2018. Income taxes recorded differed from the amounts computed by applying the U.S. Federal income tax rate of 21% to loss before income taxes as a result of the following (in thousands).

	2020	2019	2018
Computed “expected” Federal tax benefit	$ (38,706)	$ (23,413)	$ (34,029)
(Increase) reduction in income taxes benefit resulting from:			
Change in valuation allowance	41,519	7,913	24,233
(Decrease) increase due to uncertain tax positions	(764)	(64)	7
Foreign income inclusion	3,570	—	11,089
State and local income benefit, net of Federal income tax benefit	(4,675)	4,144	(11,708)
Equity based compensation	1,883	1,367	4,219
Foreign rate differential	629	(564)	956
Change in fair value contingent consideration	287	1,219	(280)
Other, net	(3,743)	9,398	5,513
Income tax benefit	$ —	$ —	$ —

A reconciliation of the beginning and ending amount of gross unrecognized tax benefits is as follows (in thousands):

	2020	2019	2018
Balance, January 1	$ 4,292	$ 4,356	$ 4,349
Increase related to current year positions	88	122	—
Increase (decrease) related to previously recognized positions	(766)	(186)	7
Balance, December 31	$ 3,614	$ 4,292	$ 4,356

These unrecognized tax benefits would all impact the effective tax rate if recognized. There are no positions which we anticipate could change within the next twelve months.

(9) Accrued Liabilities

Accrued liabilities consist of the following as of December 31, 2020 and 2019 (in thousands):

	December 31, 2020	December 31, 2019
Payroll	$ 7,643	$ 9,575
Professional fees	4,457	4,314
Contract manufacturing costs	6,274	8,768
Research services	4,649	6,675
Other	6,034	2,000
Total	$ 29,057	$ 31,332

(10) Equity

Effective June 19, 2019, our certificate of incorporation was amended to increase the number of authorized shares of common stock from 240,000,000 to 400,000,000.

Under the terms and conditions of the Certificate of Designation creating the Series A-1 Preferred Stock, this stock is convertible by the holder at any time into our common stock, is non-voting, has an initial conversion price of $94.86 per common share, subject to adjustment, and is redeemable by us at its face amount ($31.6 million), plus any accrued and unpaid dividends. The Certificate of Designation does not contemplate a sinking fund. The Series A-1 Preferred Stock ranks senior to both our Series C-1 Convertible Preferred Stock and our common stock. In a liquidation, dissolution, or winding up of the Company, the Series A-1 Preferred Stock's liquidation preference must be fully satisfied before any distribution could be made to the holders of the common stock. Other than in such a liquidation, no terms of the Series A-1 Preferred Stock affect our ability to declare or pay dividends on our common stock as long as the Series A-1 Preferred Stock's dividends are accruing. The liquidation value of this Series A-1 Preferred stock is equal to $1,000 per share outstanding plus any accrued unpaid dividends. Dividends in arrears with respect to the Series A-1 Preferred Stock were approximately $1.6 million or $51.54 per share, and $1.4 million, or $44.92 per share, at December 31, 2020 and 2019, respectively.

In October 2017, we filed, and the SEC declared effective, a Registration Statement on Form S-3 (the "2017 Registration Statement"), covering the offering of up to $250 million of common stock, preferred stock, warrants, debt securities and units. The 2017 Registration Statement included a prospectus covering the offering, issuance and sale of up to 15 million shares of our common stock from time to time in "at-the-market offerings" pursuant to a Controlled Equity Offering℠ sales agreement (the "Sales Agreement") entered into with Cantor Fitzgerald & Co. (the "Sales Agent") on October 30, 2017. Pursuant to the Sales Agreement, sales will be made only upon instructions by us to the Sales Agent, and we cannot provide any assurances that it will issue any shares pursuant to the Sales Agreement. On October 18, 2017, we exercised our right under that certain At Market Issuance Sales Agreement by and between us and MLV & Co. LLC, dated as of October 10, 2014 (the "2014 ATM Program") to terminate the 2014 ATM Program, which termination took effect upon the effectiveness of the 2017 Registration Statement. We terminated the Sales Agreement with Cantor Fitzgerald & Co. in May 2018.

In May 2018, we entered into an At Market Issuance Sales Agreement (the "Previous Sales Agreement") with B. Riley FBR, Inc. ("BRFBR") with respect to an at-the-market offering program under which we may offer and sell, from time to time at our sole discretion, up to 20 million shares of our common stock through BRFBR as our sales agent. The issuance and sale of the shares under the Agreement are made pursuant to our 2017 Registration Statement. In December 2018, we filed a prospectus supplement with the

SEC in connection with the offer and sale of up to an additional 30 million shares from time to time pursuant to the Previous Sales Agreement.

On July 22, 2020, we filed an Automatic Shelf Registration Statement on Form S-3ASR (file no. 333-240006) (the "Registration Statement"). The Registration Statement included both a base prospectus that covered the potential offering, issuance and sale from time to time of common stock, preferred stock, warrants, debt securities and units of Agenus and a prospectus covering the offering, issuance and sale of up to 100 million shares of our common stock from time to time in "at-the-market offerings" pursuant to a new At Market Issuance Sales Agreement (the "New Sales Agreement") entered into with B. Riley on July 22, 2020. Pursuant to the New Sales Agreement, sales will be made only upon instructions by us to B. Riley.

During the year ended December 31, 2020, we received net proceeds of approximately $156.4 million from the sale of approximately 50.1 million shares of our common stock at an average price per share of approximately $3.17, in at-the-market offerings under both the New Sales Agreement and the Previous Sales Agreement.

On December 20, 2018, in connection of the Gilead Collaboration Agreement we also entered into the Stock Purchase Agreement (the "Gilead Stock Purchase Agreement") with Gilead Sciences, Inc. ("Gilead"), pursuant to which Gilead purchased approximately 11.11 million shares of our common stock (the "Shares") for an aggregate purchase price of $30.0 million, or $2.70 per Share. Gilead owned approximately 8.5% of the outstanding shares of our common stock after such purchase. Under the Stock Purchase Agreement, Gilead has agreed (i) not to dispose of any of the Shares for a period of 12 months, (ii) to certain standstill provisions that generally preclude it from acquiring more than 15% of our outstanding voting stock after taking into account the purchase of the Shares and (iii) to vote the Shares in accordance with the recommendations of our board of directors in connection with certain equity incentive plan or compensation matters for a period of 12 months. In the Gilead Stock Purchase Agreement, we agreed to register the Shares for resale under the Securities Act of 1933, and in October 2019 we filed a registration statement with the SEC accordingly.

In June 2020, in connection with the Betta License Agreement, we entered into a stock purchase agreement with Betta and Betta HK, pursuant to which we agreed to sell to Betta HK approximately 5.0 million shares of our common stock for an aggregate purchase price of approximately $20.0 million, or $4.03 per share. The closing under the stock purchase agreement occurred in July 2020. Betta HK owned approximately 2.8% of the outstanding shares of our common stock after such purchase. Under the stock purchase agreement, Betta HK has agreed not to dispose of any of the shares for a period of 12 months and to vote the shares in accordance with the recommendations of our board of directors for a period of 12 months. We have agreed to register the shares for resale under the Securities Act of 1933, as amended.

(11) Series C-1 Convertible Preferred Stock

In October 2018, we entered into a Stock Purchase Agreement with certain institutional investors (the "Purchasers"), pursuant to which we issued and sold an aggregate of 18,459 shares of Series C-1 Convertible Preferred Stock (the "C-1 Preferred Shares"), at a purchase price of $2,167 per share. Each C-1 Preferred Share is convertible into 1,000 shares of our common stock at an initial conversion price of $2.167 per share of common stock, which represents a 10% premium over the prior day's closing price on Nasdaq. The aggregate purchase price paid by the Purchasers C-1 Preferred Shares was approximately $40,000,000. We received net proceeds of $39.9 million after offering expenses.

The Stock Purchase Agreement requires us to register the resale of the Common Stock underlying the C-1 Preferred Shares (the "Conversion Shares"), which occurred in the fourth quarter of 2018.

The C-1 Preferred Shares have been classified as temporary or mezzanine equity on our Consolidated Balance Sheets in accordance with U.S. GAAP as the C-1 Convertible Preferred Shares contain deemed liquidation rights that are a contingent redemption feature not solely in the Company's control.

Conversion

The C-1 Preferred Shares are convertible at the option of the stockholder into the number of shares of Common Stock determined by dividing the stated value of the C-1 Preferred Shares being converted by the conversion price of $2.167, subject to adjustment for stock splits, reverse stock splits and similar recapitalization events. We will not effect any conversion of the C-1 Preferred Shares, and a stockholder shall not have the right to convert any portion of the C-1 Preferred Shares, to the extent that, after giving effect to the conversion such stockholder would beneficially own in excess of 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock pursuant to a notice of conversion (the "Beneficial Ownership Limitation"). By written notice to us, a Purchaser may from time to time increase or decrease the Beneficial Ownership Limitation percentage not in excess of 19.99% of the number of shares of Common Stock outstanding immediately after

giving effect to the issuance of the shares of Common Stock pursuant to a notice of conversion; provided that any such increase will not be effective until the sixty-first (61st) day after such notice is delivered to the us.

In the year ended December 31, 2019, holders of shares of Series C-1 Preferred Stock converted a portion of such shares into 6.0 million shares of our common stock. As of December 31, 2020, 12,459 shares of Series C-1 Convertible Preferred Stock remained outstanding.

Voting

The C-1 Preferred Shares do not have voting rights. However, as long as any Preferred Shares are outstanding, we may not, without the affirmative vote of the holders of a majority of the then-outstanding C-1 Preferred Shares, (i) alter or change adversely the powers, preferences or rights given to the C-1 Preferred Shares or alter or amend the Certificate of Designation, amend or repeal any provision of, or add any provision to, our Certificate of Incorporation or bylaws, or file any articles of amendment, certificate of designations, preferences, limitations and relative rights of any series of preferred stock, if such action would adversely alter or change the preferences, rights, privileges or powers of, or restrictions provided for the benefit of the C-1 Preferred Shares, regardless of whether any of the foregoing actions shall be by means of amendment to the Certificate of Incorporation or by merger, consolidation or otherwise, (ii) issue further C-1 Preferred Shares or increase or decrease (other than by conversion) the number of authorized C-1 Preferred Shares, or (iii) enter into any agreement with respect to any of the foregoing.

Dividends

The C-1 Preferred Shares are entitled to receive dividends equal (on an as-if-converted-to-Common-Stock-basis, without regard to the Beneficial Ownership Limitation) to and in the same form, and in the same manner, as dividends (other than dividends in the form of Common Stock) actually paid on shares of Common Stock when, and if paid.

Liquidation

In any liquidation or dissolution of the Company, the C-1 Preferred Shares are entitled to participate in the distribution of assets, to the extent legally available for distribution, on a pari passu basis with the Common Stock.

Redemption

If at any time while the C-1 Preferred Shares are outstanding, a) the Company effects any merger, consolidation, stock sale or other business combination (other than such a transaction in which the Company is the surviving or continuing entity and its common stock is not exchanged for or converted into other securities, cash or property), b) the Company effects any sale of all or substantially all of its assets in one transaction or a series of related transactions, c) any tender offer or exchange offer (whether by the Company or another person) is completed pursuant to which more than 50% of the common stock not held by the Company or is exchanged for or converted into other securities, cash or property, or d) the Company effects any reclassification of the common stock or any compulsory share exchange pursuant (other than as a result of a dividend, subdivision or combination covered above) to which the common stock is effectively converted into or exchanged for other securities, cash or property, (in any such case, a “Fundamental Transaction”) then, upon any subsequent conversion of the C-1 Preferred Shares, the holder shall have the right to receive, in lieu of the right to receive shares of common stock, for each share of common stock that would have been issued upon such conversion immediately prior to the occurrence of such Fundamental Transaction, the same kind and amount of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the equivalent amount of common stock.

Registration Payment Arrangement

We were required to file a registration statement covering the resale of the full number of shares no later than 30 days after the closing of the agreement and must use commercially reasonable efforts to cause the registration statement to be declared effective no later than 90 days after the closing date (no review by the SEC) or in the event of a review by the SEC, 120 days after the closing date. We filed, and the SEC declared effective this registration statement during 2018. If the registration statement is not maintained we must pay to each holder 1.0% of the holder’s ratable interest in the aggregate purchase price on the day of the filing/maintenance failure and on every thirtieth day thereafter until the filing/maintenance failure is cured, up to a maximum of 6% (six months). We currently deem the likelihood that we will ever be required to make payments under this arrangement to be remote, and as such no contingent liability has been recorded in our Consolidated Balance Sheets.

(12) Share-based Compensation Plans

Our 1999 Equity Incentive Plan, as amended (the “1999 EIP”) authorized awards of incentive stock options within the meaning of Section 422 of the Internal Revenue Code (the “Code”), non-qualified stock options, non-vested (restricted) stock, and unrestricted stock for up to 2.0 million shares of common stock (subject to adjustment for stock splits and similar capital changes and exclusive of options exchanged at the consummation of mergers) to employees and, in the case of non-qualified stock options, non-vested

(restricted) stock, and unrestricted stock, to consultants and directors as defined in the 1999 EIP. The plan terminated on November 15, 2009.

On March 12, 2009, our Board of Directors adopted, and on June 10, 2009, our stockholders approved, our 2009 Equity Incentive Plan (the "2009 EIP"). The 2009 EIP provides for the grant of incentive stock options intended to qualify under Section 422 of the Code, nonstatutory stock options, restricted stock, unrestricted stock and other equity-based awards, such as stock appreciation rights, phantom stock awards, and restricted stock units, for up to 29.2 million shares of our common stock (subject to adjustment in the event of stock splits and other similar events). As of December 31, 2020, no shares remain available for issuance under the 2009 EIP.

On April 10, 2019, our Board of Directors adopted, and on June 19, 2019, our stockholders approved, our 2019 Equity Incentive Plan (the "2019 EIP"). The 2019 EIP provides for the grant of incentive stock options intended to qualify under Section 422 of the Code, nonstatutory stock options, restricted stock, unrestricted stock and other equity-based awards, such as stock appreciation rights, phantom stock awards, and restricted stock units, which we refer to collectively as Awards, for up to 40.2 million shares of our common stock (subject to adjustment in the event of stock splits and other similar events).

The Board of Directors appointed the Compensation Committee to administer the 1999 EIP, the 2009 EIP and the 2019 EIP. No awards will be granted under the 2019 EIP after June 19, 2029.

On March 12, 2009, our Board of Directors adopted, and on June 10, 2009, our stockholders approved, the 2009 Employee Stock Purchase Plan (the "2009 ESPP") to provide eligible employees the opportunity to acquire our common stock in a program designed to comply with Section 423 of the Code. There were 166,666 shares of common stock reserved for issuance under the 2009 ESPP. Rights to purchase common stock under the 2009 ESPP were granted at the discretion of the Compensation Committee, which determined the frequency and duration of individual offerings under the plan and the dates when stock may have been purchased. Eligible employees participated voluntarily and may have withdrawn from any offering at any time before the stock is purchased. Participation terminated automatically upon termination of employment. The purchase price per share of common stock in an offering was 85% of the lesser of its fair value at the beginning of the offering period or on the applicable exercise date and may have been paid through payroll deductions, periodic lump sum payments, the delivery of our common stock, or a combination thereof. Unless otherwise permitted by the Board of Directors, no participant may have acquired more than 3,333 shares of stock in any offering period. No participant was allowed to purchase shares under the 2009 ESPP if such employee would own or would have been deemed to own stock possessing 5% or more of the total combined voting power or value of the Company. The 2009 ESPP plan terminated on June 10, 2019.

In the second quarter of 2019, our Board of Directors adopted, and on June 16, 2020, our stockholders approved the 2019 Employee Stock Purchase Plan (the "2019 ESPP") to provide eligible employees the opportunity to acquire our common stock in a program designed to comply with Section 423 of the Code. There are 500,000 shares reserved for issuance under the 2019 ESPP.

Our Directors' Deferred Compensation Plan, as amended, permits each outside director to defer all, or a portion of, their cash compensation until their service as a director ends or until a specified date into a cash account or a stock account. There are 575,000 shares of our common stock reserved for issuance under this plan. As of December 31, 2020, 72,081 shares had been issued. Amounts deferred to a cash account will earn interest at the rate paid on one-year Treasury bills with interest added to the account annually. Amounts deferred to a stock account will be converted on a quarterly basis into a number of units representing shares of our common stock equal to the amount of compensation which the participant has elected to defer to the stock account divided by the applicable price for our common stock. The applicable price for our common stock has been defined as the average of the closing price of our common stock for all trading days during the calendar quarter preceding the conversion date as reported by The Nasdaq Capital Market. Pursuant to this plan, a total of 475,192 units, each representing a share of our common stock at a weighted average common stock price of $4.38, had been credited to participants' stock accounts as of December 31, 2020. The compensation charges for this plan were immaterial for all periods presented.

On November 4, 2015, our Board of Directors adopted and approved our 2015 Inducement Equity Plan (the "2015 IEP") in compliance with and in reliance on NASDAQ Listing Rule 5635(c)(4), which exempts inducement grants from the general requirement of the NASDAQ Listing Rules that equity-based compensation plans and arrangements be approved by stockholders. There are 1,500,000 shares of our common stock reserved for issuance under the 2015 IEP.

We primarily use the Black-Scholes option pricing model to value options granted to employees and non-employees, as well as options granted to members of our Board of Directors. All stock option grants have 10-year terms and generally vest ratably over a 3 or 4-year period.

The fair value of each option granted during the periods was estimated on the date of grant using the following weighted average assumptions:

	2020	2019	2018
Expected volatility	66%	64%	64%
Expected term in years	6	5	6
Risk-free interest rate	0.8%	1.8%	2.8%
Dividend yield	0%	0%	0%

Expected volatility is based exclusively on historical volatility data of our common stock. The expected term of stock options granted is based on historical data and other factors and represents the period of time that stock options are expected to be outstanding prior to exercise. The risk-free interest rate is based on U.S. Treasury strips with maturities that match the expected term on the date of grant.

A summary of option activity for 2020 is presented below:

	Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at December 31, 2019	27,164,147	$ 3.67		
Granted	7,330,377	3.82		
Exercised	(1,161,757)	3.05		
Forfeited	(2,974,728)	3.30		
Expired	(1,441,638)	4.52		
Outstanding at December 31, 2020	28,916,401	3.70	7.47	$ 7,088,129
Vested or expected to vest at December 31, 2020	28,916,401	3.70	7.47	$ 7,088,129
Exercisable at December 31, 2020	14,997,220	$ 3.98	6.13	$ 3,232,022

The weighted average grant-date fair values of options granted during the years ended December 31, 2020, 2019, and 2018, was $2.04, $1.77, and $1.23, respectively.

The aggregate intrinsic value in the table above represents the difference between our closing stock price on the last trading day of fiscal 2020 and the exercise price, multiplied by the number of in-the-money options that would have been received by the option holders had all option holders exercised their options on December 31, 2020 (the intrinsic value is considered to be zero if the exercise price is greater than the closing stock price). This amount changes based on the fair market value of our stock. The total intrinsic value of options exercised during the years ended December 31, 2020, 2019, and 2018, determined on the dates of exercise, was $1.2 million, $385,000, and $399,000, respectively.

During 2020, 2019, and 2018, all options were granted with exercise prices equal to the market value of the underlying shares of common stock on the grant date other than certain awards dated March 2, 2018, August 6, 2018, December 31, 2018 and December 24, 2019. In March 2018, our Board of Directors approved certain awards subject to forfeiture in the event stockholder approval was not obtained to increase the shares available under our 2009 EIP. This approval was obtained in June 2018. Accordingly, these awards have a grant date of June 2018, with an exercise price as of the date the Board of Director's approved the awards in March 2018. In August 2018, our Board of Directors approved certain awards. However, the awards were not communicated until October 2018. Accordingly, these awards have a grant date of October 2018 with an exercise price as of the date the Board of Director's approved the awards in August 2018. In December 2018, our Board of Directors approved certain awards subject to forfeiture in the event stockholder approval was not obtained for our 2019 EIP. This approval was obtained in June 2019. Accordingly, these awards have a grant date of June 2019, with an exercise price as of the date the Board of Director's approved the awards in December 2018. In December 2019, our Board of Directors approved certain awards. However, the awards were not communicated until February 2020. Accordingly, these awards have a grant date of February 2020 with an exercise price as of the date the Board of Director's approved the awards in December 2019.

As of December 31, 2020, there was $22.3 million of unrecognized share-based compensation expense related to stock options granted to employees, consultants and directors for which, if all milestones are achieved, will be recognized over a weighted average period of 2.2 years.

Certain employees and consultants have been granted non-vested stock. The fair value of non-vested market-based awards is calculated based on a Monte Carlo simulation as of the date of issuance. The fair value of other non-vested stock is calculated based on the closing sale price of our common stock on the date of issuance.

A summary of non-vested stock activity for 2020 is presented below:

	Nonvested Shares	Weighted Average Grant Date Fair Value
Outstanding at December 31, 2019	2,207,943	$ 2.85
Granted	179,816	3.60
Vested	(165,632)	2.75
Forfeited	(1,335,311)	3.43
Outstanding at December 31, 2020	886,816	$ 2.14

As of December 31, 2020, there was $0.8 million of unrecognized share-based compensation expense related to these non-vested shares for which, if all milestones are achieved, will be recognized over a period of 1.7 years. The total intrinsic value of shares vested during the years ended December 31, 2020, 2019, and 2018, was $621,000, $357,000, and $242,000, respectively.

Cash received from option exercises and purchases under our 2009 ESPP for the years ended December 31, 2020, 2019, and 2018, was $4.5 million, $1.6 million, and $1.2 million, respectively. We issue new shares upon option exercises, purchases under our 2009 ESPP and 2019 ESPP, vesting of non-vested stock and under the Directors' Deferred Compensation Plan. During the years ended December 31, 2020, 2019, and 2018, 236,855 shares, 84,703 shares, and 140,313 shares, were issued under 2009 ESPP and 2019 ESPP, respectively. During the years ended December 31, 2020, 2019, and 2018, 165,632 shares, 129,675 shares, and 53,050 shares, respectively, were issued as a result of the vesting of non-vested stock.

The impact on our results of operations from share-based compensation for the years ended December 31, 2020, 2019, and 2018, was as follows (in thousands).

	Year Ended		
	2020	2019	2018
Research and development	$ 3,758	$ 3,873	$ 3,498
General and administrative	6,363	6,019	4,127
Total share-based compensation expense	$ 10,121	$ 9,892	$ 7,625

(13) License, Research, and Other Agreements

On December 5, 2014, Agenus Switzerland, entered into a license agreement with the Ludwig Institute for Cancer Research Ltd., or Ludwig, which replaced and superseded a prior agreement entered into between the parties in May 2011. Pursuant to the terms of the license agreement, Ludwig granted Agenus Switzerland an exclusive, worldwide license under certain intellectual property rights of Ludwig and Memorial Sloan Kettering Cancer Center arising from the prior agreement to further develop and commercialize GITR, OX40 and TIM-3 antibodies. On January 25, 2016, we and Agenus Switzerland entered into a second license agreement with Ludwig, on substantially similar terms, to develop CTLA-4 and PD-1 antibodies. Pursuant to the December 2014 license agreement, Agenus Switzerland made an upfront payment of $1.0 million to Ludwig. The December 2014 license agreement also obligates Agenus Switzerland to make potential milestone payments of up to $20.0 million for events prior to regulatory approval of licensed GITR, OX40 and TIM-3 products, and potential milestone payments in excess of $80.0 million if such licensed products are approved in multiple jurisdictions, in more than one indication, and certain sales milestones are achieved. Under the January 2016 license agreement, we are obligated to make potential milestone payments of up to $12.0 million for events prior to regulatory approval of CTLA-4 and PD-1 licensed products, and potential milestone payments of up to $32.0 million if certain sales milestones are achieved. Under each of these license agreements, we and/or Agenus Switzerland will also be obligated to pay low to mid-single digit royalties on all net sales of licensed products during the royalty period, and to pay Ludwig a percentage of any sublicensing income, ranging from a low to mid-double digit percentage depending on various factors. The license agreements may each be terminated as follows: (i) by either party if the other party commits a material, uncured breach; (ii) by either party if the other party initiates bankruptcy, liquidation or similar proceedings; or (iii) by Agenus Switzerland or us (as applicable) for convenience upon 90 days' prior written notice. The license agreements also contain customary representations and warranties, mutual indemnification, confidentiality and arbitration provisions.

In connection with the December 2015 acquisition of PhosImmune, we obtained exclusive rights to a portfolio of patent applications and one issued patent relating to phosphopeptide tumor targets (PTTs) under a patent license agreement with the University of Virginia ("UVA"). The UVA license gives us exclusive rights to develop and commercialize the PTT technology and an exclusive option to license any further PTT technology arising from ongoing research at UVA until December 2018. Under the license agreement, we will pay low to mid-single digit running royalties on net sales of PTT products, and a modest flat percentage of sublicensing income. In addition, we may be obligated to make milestone payments of up to $2.7 million for each indication of a licensed PTT product to complete clinical trials and achieve certain sales thresholds. If we fail to meet certain diligence milestones, we may also be required to pay penalties in excess of $150,000. The term of the UVA license agreement ends when the last of the licensed patents expires or becomes no longer valid. As of March 2021, the last granted patent that is licensed to us by UVA will expire in late 2033, and there are currently pending patent applications that, if granted, will not expire until mid-2037. The UVA license agreement may be terminated as follows: (i) by UVA in connection with our bankruptcy or cessation of business relating to the licensed technology, (ii) by UVA if we commit a material, uncured breach or (iii) by us for our convenience on 180 days written notice.

We have entered into various agreements with contract manufacturers, institutions, and clinical research organizations (collectively "third party providers") to perform pre-clinical activities and to conduct and monitor our clinical studies. Under these agreements, subject to the enrollment of patients and performance by the applicable third-party provider, we have estimated our total payments to be $385.5 million over the term of the studies. For the years ended December 31, 2020, 2019, and 2018, $64.7 million, $87.7 million, and $41.5 million, respectively, have been expensed in the accompanying consolidated statements of operations related to these third-party providers. Through December 31, 2020, we have expensed $318.7 million as research and development expenses and $308.1 million of this amount has been paid. The timing of expense recognition and future payments related to these agreements is subject to the enrollment of patients and performance by the applicable third-party provider.

(14) Revenue from Contracts with Customers

Gilead Collaboration Agreement

On December 20, 2018, we entered into a series of agreements with Gilead focused on the development and commercialization of up to five novel immuno-oncology therapies. Pursuant to the terms of the license agreement, the option and license agreements and the stock purchase agreement we entered into with Gilead (each defined below and, collectively, the "Gilead Collaboration Agreements"), at the closing of the transaction on January 23, 2019 (the "Effective Date"), we received an upfront cash payment from Gilead of $120.0 million and Gilead made a $30.0 million equity investment in Agenus. We are also eligible to receive up to $1.1 billion in aggregate potential milestones.

License Agreement

Pursuant to the terms of a license agreement between the parties (the "License Agreement"), we granted Gilead an exclusive, worldwide license under certain of our intellectual property rights to develop, manufacture and commercialize our preclinical bispecific antibody, AGEN1423 (now GS-1423), in all fields of use. On November 6, 2020, we received notice from Gilead that it is returning GS-1423 back to us and voluntarily terminating the License Agreement, effective as of February 4, 2021. The Option and License Agreements and the Stock Purchase Agreement (described below) remain in full force and effect. Pursuant to the License Agreement, Gilead was responsible for all of the development, manufacturing and commercialization costs for any products that Gilead may have developed under the License Agreement. In addition, Gilead also received the right of first negotiation for two of our undisclosed antibody programs. The License Agreement would have continued until all of Gilead's applicable payment obligations under the License Agreement had been performed or had expired, or the agreement was earlier terminated. Under the terms of the License Agreement, each party had the right to terminate the agreement for material breach by, or insolvency of, the other party. Gilead may have also terminated the License Agreement in its entirety, or on a product-by-product or country-by-country basis, for convenience upon ninety (90) days' notice (which it exercised in November 2020). Pursuant to the terms of the License Agreement, we were eligible to receive potential development and commercial milestones of up to $552.5 million in the aggregate, as well as tiered royalty payments on aggregate net sales ranging from the high single digit to mid-teen percent, subject to certain reductions under certain circumstances as described in the License Agreement. We filed an investigational new drug ("IND") application for AGEN1423 (now GS-1423) in February 2019, and the IND was accepted by the FDA in March 2019.

Option and License Agreements

Pursuant to the terms of two separate option and license agreements between the parties (each, an "Option and License Agreement" and together, the "Option and License Agreements"), we granted Gilead exclusive options to license exclusively ("License Option") our bispecific antibody, AGEN1223, and our monospecific antibody, AGEN2373 (together, the "Option Programs"), during the respective Option Periods (defined below). Pursuant to the terms of the Option and License Agreements, we

agreed to grant Gilead an exclusive, worldwide license under our intellectual property rights to develop, manufacture and commercialize AGEN1223 or AGEN2373, as applicable, in all fields of use upon Gilead's exercise of the applicable License Option. Gilead is entitled to exercise its License Option for either or both Option Programs at any time up until ninety (90) days following Gilead's receipt of a data package with respect to the first complete Phase 1b clinical trial for each Option Program (the "Option Period"). During the Option Period, we are responsible for the costs and expenses related to the development of the Option Programs. After Gilead's exercise of a License Option, if at all, Gilead would be responsible for all development, manufacturing and commercialization activities relating to the relevant Option Program at Gilead's cost and expense.

During the Option Period, we are eligible to receive milestones of up to $30.0 million in the aggregate. If Gilead exercises a License Option, it would be required to pay an upfront license exercise fee of $50.0 million for each License Option that is exercised. Following any exercise of a License Option, we would be eligible to receive additional development and commercial milestones of up to $520.0 million in the aggregate for each such Option Program, as well as tiered royalty payments on aggregate net sales. For either, but not both, of the Option Programs, we will have the right to opt-in to share Gilead's development and commercialization costs in the United States for such Option Program in exchange for a profit (loss) share on a 50:50 basis and revised milestone payments. If we opt-in under one Option and License Agreement, our right to opt-in under the other Option and License Agreement automatically terminates. We filed INDs for each of AGEN1223 and AGEN2373 in 2019, and both assets are now in clinical development.

Unless earlier terminated, each Option and License Agreement will continue until the earlier of (i) the expiration of the Option Period, without Gilead's exercise of the License Option; and (ii) the date all of Gilead's applicable payment obligations under the Option and License Agreement have been performed or have expired. Under the terms of each Option and License Agreement, we and Gilead each have the right to terminate the agreement for material breach by, or insolvency of, the other party. Gilead may also terminate an Option License Agreement in its entirety, or on a product-by-product or country-by-country basis for convenience upon ninety (90) days' notice.

Stock Purchase Agreement

Pursuant to the terms of a stock purchase agreement between the parties (the "Stock Purchase Agreement"), Gilead purchased 11,111,111 shares of Agenus common stock (the "Shares") for an aggregate purchase price of $30.0 million, or $2.70 per share. Gilead owned approximately 8.5% of the outstanding shares of Agenus common stock after such purchase. Under the Stock Purchase Agreement, Gilead has agreed (i) not to dispose of any of the Shares for a period of 12 months, (ii) to certain standstill provisions that generally preclude it from acquiring more than 15% of Agenus' outstanding voting stock after taking into account the purchase of the Shares and (iii) to vote the Shares in accordance with the recommendations of the Agenus board of directors in connection with certain equity incentive plan or compensation matters for a period of 12 months. In the Stock Purchase Agreement we agreed to register the Shares for resale under the Securities Act of 1933, and in October 2019 we filed a registration statement with the SEC accordingly.

Collaboration Revenue

We identified the following performance obligations under the Gilead Collaboration Agreements: (1) the license that we granted to Gilead pursuant to the License Agreement (the "AGEN1423 License"), (2) our obligation to complete manufacturing and know-how tech transfer activities to Gilead pursuant to the License Agreement to enable Gilead or its third party contract manufacturing organization to manufacture the licensed antibody (the "AGEN1423 Technology Transfer"), (3) our obligation to advance development of AGEN1223 to the option exercise point pursuant to the AGEN1223 Option and License Agreement (such development activities, the "AGEN1223 R&D Services"), and (4) our obligation to advance development of AGEN2373 to the option exercise point pursuant to the AGEN2373 Option and License Agreement (such development activities, the "AGEN2373 R&D Services").

We determined that the AGEN1423 License was both capable of being distinct and distinct within the context of the contract given both the advanced stage of development and that the IND was anticipated to be accepted within a short period of time after the Effective Date. Gilead can begin deriving benefit from the license prior to the AGEN1423 Technology Transfer being completed. The technology transfer plan includes an extensive list of items to be transferred over time and is separate from the transfer of the AGEN1423 License which occurred at contract inception. As a result, we concluded that the AGEN1423 License and AGEN1423 Technology Transfer are separate performance obligations.

We considered whether the AGEN1223 R&D Services and AGEN2373 R&D Services were distinct from one another and from the performance obligations related to AGEN1423. We determined that the research and development services related to each antibody were both capable of being distinct and distinct within the context of the contract given that each program is governed by a separate option agreement with a separate development plan. The services performed to develop each program are independent of one another, and the antibodies are in different stages of development. We concluded that the AGEN1223 R&D Services and AGEN2373 R&D Services are separate performance obligations.

We determined that there were no significant financing components, noncash consideration, or amounts that may be refunded to the customer, and as such the total upfront fixed consideration of license and research and development fees totaling $120.0 million would be included in the total transaction price. In addition to the fixed consideration, the variable consideration milestones related to IND acceptance for each of the three antibodies was also included in the transaction price. We determined that based on the likelihood of the triggering event occurring for the acceptance of each IND filling, the most likely amount for each of the three milestones was the stated value, totaling $22.5 million. The variable consideration related to each performance obligation will be allocated entirely to that specific performance obligation. The remaining fixed consideration will be allocated using the relative standalone selling price method.

We determined the estimated standalone selling price of the AGEN1423 License by applying a risk adjusted, net present value, estimate of future cash flow approach. We determined the estimated standalone selling price of the AGEN1423 Technology Transfer, and AGEN1223 R&D Services and AGEN2373 R&D Services by using the estimated costs of satisfying these performance obligations, plus an appropriate margin for such services.

Revenue attributable to the AGEN1423 License was recognized at a point-in-time, upon delivery of the license to Gilead at the Effective Date. The AGEN1423 Technology Transfer, AGEN1223 R&D Services and AGEN2373 R&D Services are satisfied over time and revenue attributable to these performance obligations will be recognized as the related services are being performed using the input of costs incurred over total costs expected to be incurred. We believe this is the best measure of progress because other measures do not reflect how we transfer our performance obligations to Gilead. A cost-based input method of revenue recognition requires management to make estimates of costs to complete our performance obligations. In making such estimates, significant judgment is required to evaluate assumptions related to cost estimates. The cumulative effect of revisions to estimated costs to complete our performance obligations will be recorded in the period in which changes are identified and amounts can be reasonably estimated. A significant change in these assumptions and estimates could have a material impact on the timing and amount of revenue recognized in future periods.

For the year ended December 31, 2020, we recognized $12.3 million of research and development revenue related to the Gilead Collaboration Agreements based on the partial satisfaction of the over time performance obligations as of period end. For the year ended December 31, 2019, we recognized $86.1 million of research and development revenue related to the Gilead Collaboration Agreements. This amount included $20.6 million of the transaction price recognized based on the partial satisfaction of the over time performance obligations as of period end.

We expect to recognize deferred research and development revenue of $17.0 million and $27.1 million in 2021 and 2022, respectively, related to performance obligations that are unsatisfied or partially unsatisfied as of December 31, 2020.

Betta License Agreement

In June 2020, we entered into a license and collaboration agreement (the “Betta License Agreement”) with Betta Pharmaceuticals Co., Ltd. (“Betta”), pursuant to which we granted Betta an exclusive license to develop, manufacture and commercialize balstilimab and zalifrelimab in Greater China. Under the terms of the Betta License Agreement, we received $15.0 million upfront in July 2020 and are eligible to receive up to $100.0 million in milestone payments plus royalties on any future sales in Greater China.

We also entered into a stock purchase agreement with Betta and a wholly-owned subsidiary of Betta (“Betta HK”). Refer to Note 10 – Equity for additional detail.

We identified the following performance obligations under the Betta License Agreement: (1) the license of balstilimab and zalifrelimab and (2) our obligation to complete manufacturing technology transfer activities to Betta (the “Technology Transfer”) for balistilimab and zalifrelimab.

We determined that the license of balstilimab and zalifrelimab was both capable of being distinct and distinct within the context of the contract as the license has significant stand-alone functionality as of contract inception based on the advanced development stage of balstilimab and zalifrelimab. Betta can begin deriving benefit from the license prior to the Technology Transfer being completed. The Technology Transfer is completed over time and is separate from the transfer of the balstilimab and zalifrelimab license, which occurred at contract inception. As a result, we concluded that the balstilimab and zalifrelimab license and Technology Transfer are separate performance obligations.

We determined that there were no significant financing components, noncash consideration, or amounts that may be refunded to the customer, and as such the total upfront fixed consideration of $15.0 million would be included in the total transaction price and be allocated to the identified performance obligations using the relative standalone selling price method.

We determined the estimated standalone selling price of the balstilimab and zalifrelimab license by applying a risk adjusted, net present value, estimate of future cash flow approach. We determined the estimated standalone selling price of the Technology Transfer by using the estimated costs of satisfying the performance obligation, plus an appropriate margin for such services.

Revenue attributable to the balstilimab and zalifrelimab license was recognized at a point-in-time, upon delivery of the license to Betta at contract inception. The Technology Transfer is satisfied over time and revenue attributable to this performance obligation will be recognized as the related services are being performed using the input of costs incurred over total costs expected to be incurred. We believe this is the best measure of progress because other measures do not reflect how we transfer the performance obligation to Betta.

For the year ended December 31, 2020, we recognized $13.9 million of research and development revenue related to the Betta License Agreement.

UroGen License Agreement

In November 2019, we entered into a License Agreement with UroGen Pharma Ltd. (the "UroGen License Agreement") in which we granted a license of AGEN1884 for use with UroGen's sustained release technology for intravesical delivery in patients with urinary tract cancers. Pursuant to the terms of the UroGen License Agreement, we received an upfront cash payment from UroGen of $10.0 million. We are eligible to receive up to $200.0 million in potential development, regulatory and commercial milestones, as well as 14-20% royalties on net sales of the products containing AGEN1884.

We identified the following performance obligations under the UroGen License Agreement: (1) the license of AGEN1884 that we granted UroGen, and (2) the clinical supply of AGEN1884 that we agreed to supply to UroGen. We determined that the license of AGEN1884 was both capable of being distinct and distinct within the context of the contract as the license has significant stand-alone functionality as of contract inception based on the advanced development stage of AGEN1884. We also determined that the clinical supply of AGEN1884 was both capable of being distinct and distinct within the context of the contract as it was considered a readily available resource in the market.

We determined that there were no significant financing components, noncash consideration, or amounts that may be refunded to the customer, and as such the total upfront fixed consideration of the license totaling $10.0 million would be included in the total transaction price. We concluded that the combined standalone selling price of the license approximated the $10.0 million upfront fee and as such the full amount will be recognized at a point-in-time, upon delivery of the license to UroGen at contract inception. We will not estimate the transaction price in order to recognize the revenue related to the AGEN1884 supply due to the "as invoiced" practical expedient.

For the year ended December 31, 2020, we recognized approximately $63,000 of research and development revenue related to the UroGen License Agreement. For the year ended December 31, 2019, we recognized $10.0 million of research and development revenue related to the UroGen License Agreement.

GSK License and Amended GSK Supply Agreements

In July 2006, we entered into a license agreement and a supply agreement with GSK for the use of QS-21 Stimulon (the "GSK License Agreement" and the "GSK Supply Agreement", respectively). In January 2009, we entered into an Amended and Restated Manufacturing Technology Transfer and Supply Agreement (the "Amended GSK Supply Agreement") under which GSK has the right to manufacture all of its requirements of commercial grade QS-21 Stimulon. GSK is obligated to supply us (or our affiliates, licensees, or customers) certain quantities of commercial grade QS-21 Stimulon for a stated period of time. Under these agreements, GSK paid an upfront license fee of $3.0 million and agreed to pay aggregate milestones of $5.0 million. In July 2007, the Amended GSK Supply Agreement was further amended, and we were paid an additional fixed fee of $7.3 million. In March 2012 we entered into a First Right to Negotiate and Amendment Agreement amending the GSK License Agreement and the Amended GSK Supply Agreement to clarify and include additional rights for the use of our QS-21 Stimulon (the "GSK First Right to Negotiate Agreement"). In addition, we granted GSK the first right to negotiate for the purchase of the Company or certain of our assets, which such rights expired in March 2017. As consideration for entering into the GSK First Right to Negotiate Agreement, GSK paid us an upfront, non-refundable payment of $9.0 million, $2.5 million of which is creditable toward future royalty payments. As of December 31, 2017, we had received all of the potential $24.3 million in upfront and milestone payments related to the GSK Agreements. We were also generally entitled to receive 2% royalties on net sales of prophylactic vaccines for a period of 10 years after the first commercial sale of a resulting GSK product, but we sold these royalty rights to HCR in January 2018 pursuant to the HCR Royalty Purchase Agreement (See Note 18). The GSK License and Amended GSK Supply Agreements may be terminated by either party upon a material breach if the breach is not cured within the time specified in the respective agreement. The termination or expiration of the GSK License Agreement does not relieve either party from any obligation which accrued prior to the termination or expiration. Among other provisions, the license rights granted to GSK survive expiration of the GSK License Agreement. The license rights and payment

obligations of GSK under the Amended GSK Supply Agreement survive termination or expiration, except that GSK's license rights and future royalty obligations do not survive if we terminate due to GSK's material breach unless we elect otherwise.

We assessed this arrangement in accordance with ASC 606 and concluded that the contract counterparty, GSK, is a customer. We identified the following performance obligations under the contract: (1) an exclusive license to QS-21 in the specified field and related technology transfer; and (2) and exclusive license to QS-21 in an additional field.

We determined that the fixed payments of $19.3 million constituted all of the consideration to be included in the transaction price and to be allocated to the performance obligations based on their relative stand-alone selling prices. The fixed upfront consideration is recognized under ASC 606 based on when control of the combined performance obligation is transferred to the customer, which corresponds with the service period (through December 2014). At contract inception, the milestones of $5.0 million had been excluded from the transaction price, as we could not conclude that it was probable a significant reversal would not occur. Event driven milestones are a form of variable consideration as the payments are variable based on the occurrence of future events. As part of its estimation of the amount, we considered numerous factors, including that receipt of the milestones is outside of our control and contingent upon success in future clinical trials and the licensee’s efforts. Recognition of event driven milestones should be recognized when the variable consideration is able to be estimated. As of December 31, 2017, all milestones had been received, and therefore recognized.

Any consideration related to royalties will be recognized when the related sales occur as they were determined to relate predominantly to the license granted to GSK and therefore have also been excluded from the transaction price.

For the year ended December 31, 2020, we recognized $46.5 million in non-cash royalty revenue. For the year ended December 31, 2019, we recognized $15.1 million in royalty sales milestone revenue and $30.4 million in non-cash royalty revenue. For the year ended December 31, 2018, we recognized $17.3 million in non-cash royalty revenue.

The cumulative impact of changing the timing of revenue recognition for the GSK License and Amended GSK Supply Agreements as of January 1, 2018 was a decrease to stockholders' deficit of approximately $2.5 million and a corresponding decrease in deferred revenue of $2.5 million for the portion of the upfront fee creditable toward future royalties, as described above. This amount was included in the transition adjustment, as under ASC 606 it would have been recognized as revenue in March 2012, at the time of the amendment.

Merck Collaboration and License Agreement

During the quarter ended June 30, 2014, we entered into a collaboration and license agreement with Merck to discover and optimize fully-human antibodies against two undisclosed cancer targets using the Retrocyte Display®. Under this agreement, Merck is responsible for the clinical development and commercialization of antibodies generated under the collaboration. There are no unsatisfied performance obligations relating to this contract. Pursuant to the XOMA Royalty Purchase Agreement (see Note 18), we sold to XOMA 33% of the future royalties and 10% of the future milestones that we are entitled to receive from Merck, and we remain eligible to receive from Merck approximately $76.5 million in potential payments associated with the completion of certain clinical, regulatory and commercial milestones, as well as 67% of all future royalties on worldwide product sales.

For the year ended December 31, 2020, we recognized $9.0 million in research and development revenue and $1.0 million in non-cash milestone revenue related to the achievement of a milestone. For the year ended December 31, 2019, no revenue was recognized. For each of the year ended December 31, 2018, we recognized $4.0 million in research and development revenue related to the achievement of a milestone.

The adoption of ASC 606 did not have an impact on the Merck collaboration and license agreement.

Incyte Collaboration Agreement

On January 9, 2015 and effective February 19, 2015, we entered into a global license, development and commercialization agreement (the “Collaboration Agreement”) with Incyte pursuant to which the parties plan to develop and commercialize novel immuno-therapeutics using our antibody discovery platforms. The Collaboration Agreement was initially focused on four checkpoint modulator programs directed at GITR, OX40, LAG-3 and TIM-3. In addition to the four identified antibody programs, the parties have an option to jointly nominate and pursue the development and commercialization of antibodies against additional targets during a five-year discovery period which, upon mutual agreement of the parties for no additional consideration, can be extended for an additional three years. In November 2015, we and Incyte jointly nominated and agreed to pursue the development and commercialization of three additional CPM targets. In February 2017, we amended the Collaboration Agreement by entering into a First Amendment to License, Development and Commercialization Agreement (the “First Amendment”). In October 2019, we further

amended the Collaboration Agreement by entering into a Second Amendment to License, Development and Commercialization Agreement (the "Second Amendment"). See "Amendments" section below.

Pursuant to the XOMA Royalty Purchase Agreement, we sold to XOMA 33% of the future royalties and 10% of the future milestones that we were entitled to receive from Incyte, excluding the $5.0 million milestone that we recognized in the three months ended September 30, 2018. As of December 31, 2020, we remain eligible to receive up to $450.0 million in future potential development, regulatory and commercial milestones across all programs in the collaboration, as well as 67% of all future royalties on worldwide product sales.

Agreement Structure

Under the terms of the Collaboration Agreement, we received non-creditable, nonrefundable upfront payments totaling $25.0 million. In addition, until the Amendment, the parties shared all costs and profits for the GITR, OX40 and two of the additional antibody programs on a 50:50 basis (profit-share products), and we were eligible to receive up to $20.0 million in future contingent development milestones under these programs. Incyte is obligated to reimburse us for all development costs that we incur in connection with the TIM-3, LAG-3 and one of the additional antibody programs (royalty-bearing products) and we are eligible to receive (i) up to $155.0 million in future contingent development, regulatory, and commercialization milestone payments and (ii) tiered royalties on global net sales at rates generally ranging from 6% to 12%. For each royalty-bearing product, we will also have the right to elect to co-fund 30% of development costs incurred following initiation of pivotal clinical trials in return for an increase in royalty rates. Additionally, we had the option to retain co-promotion participation rights in the United States on any profit-share product. Through the direction of a joint steering committee, until the Amendment, the parties anticipated that, for each program, we would serve as the lead for pre-clinical development activities through investigational new drug ("IND") application filing, and Incyte would serve as the lead for clinical development activities. The parties initiated the first clinical trials of antibodies arising from these programs in 2016. For each additional program beyond GITR, OX40, TIM-3 and LAG-3 that the parties elect to bring into the collaboration, we will have the option to designate it as a profit-share product or a royalty-bearing product.

The Collaboration Agreement will continue as long as (i) any product is being developed or commercialized or (ii) the discovery period remains in effect. Incyte may terminate the Collaboration Agreement or any individual program for convenience upon 12 months' notice. The Collaboration Agreement may also be terminated by either party upon the occurrence of an uncured material breach of the other party or by us if Incyte challenges patent rights controlled by us. In addition, either party may terminate the Collaboration Agreement as to any program if the other party is acquired and the acquiring party controls a competing program.

Amendments

Pursuant to the terms of the First Amendment, the GITR and OX40 programs immediately converted from profit-share programs to royalty-bearing programs and we became eligible to receive a flat 15% royalty on global net sales should any candidates from either of these two programs be approved. Incyte is now responsible for global development and commercialization and all associated costs for these programs. In addition, the profit-share programs relating to TIGIT and one undisclosed target were removed from the collaboration, with the undisclosed target reverting to Incyte and TIGIT to Agenus. Should any of those programs be successfully developed by a party, the other party will be eligible to receive the same milestone payments as the royalty-bearing programs and royalties at a 15% rate on global net sales. The terms for the remaining three royalty-bearing programs targeting TIM-3, LAG-3 and one undisclosed target remain unchanged, with Incyte being responsible for global development and commercialization and all associated costs. The Amendment gives Incyte exclusive rights and all decision-making authority for manufacturing, development, and commercialization with respect to all royalty-bearing programs.

In connection with the First Amendment, Incyte paid us $20.0 million in accelerated milestones related to the clinical development of the antibody candidates targeting GITR and OX40.

Pursuant to the terms of the Second Amendment, we transitioned preclinical development and IND preparation of the undisclosed target to Incyte.

Collaboration Revenue

For the year ended December 31, 2020, we recognized approximately $0.7 million of research and development revenue for research and development services provided. For the year ended December 31, 2019, we recognized approximately $3.7 million of research and development revenue. This amount included $2.0 million of the transaction price for the Incyte Collaboration Agreement recognized based on proportional performance and $1.7 million for research and development services. For the year ended December 31, 2018, we recognized approximately $15.5 million of research and development revenue. This amount included $1.3 million of the transaction price for the Incyte Collaboration Agreement recognized based on proportional performance, $10.0 million for the achievement of milestones and $4.2 million for research and development services.

The cumulative impact of the adoption of ASC 606 for the Incyte Collaboration Agreement as of January 1, 2018 was a decrease to stockholders' deficit of approximately $6.4 million and a corresponding decrease in deferred revenue of $6.4 million.

Disaggregation of Revenue

The following table presents revenue (in thousands) for years ended December 31, 2020, 2019 and 2018, disaggregated by geographic region and revenue type. Revenue by geographic region is allocated based on the domicile of our respective business operations.

	Year ended December 31, 2020		
	United States	Rest of World	Total
Revenue Type			
Research and development services	$ 754	$ —	$ 754
License fees and milestones	22,857	—	22,857
Other services	—	4,619	4,619
Recognition of deferred research and development revenue	12,304	—	12,304
Recognition of deferred grant revenue	91	—	91
Non-cash royalties and milestones	47,545	—	47,545
	$ 83,551	$ 4,619	$ 88,170

	Year ended December 31, 2019		
Revenue Type			
Research and development services	$ 1,707	$ —	$ 1,707
License fees	75,500	—	75,500
Royalty sales milestone	15,100	—	15,100
Manufacturing services	3,337	—	3,337
Recognition of deferred research and development revenue	22,638	—	22,638
Recognition of deferred grant revenue	652	690	1,342
Non-cash royalties	30,424	—	30,424
	$ 149,358	$ 690	$ 150,048

	Year ended December 31, 2018		
Revenue Type			
Research and development services	$ 4,150	$ —	$ 4,150
License and collaboration milestones	10,000	4,000	14,000
Recognition of deferred research and development revenue	1,325	—	1,325
Non-cash royalties	17,309	—	17,309
	$ 32,784	$ 4,000	$ 36,784

Contract Balances

Contract assets primarily relate to our rights to consideration for work completed in relation to our research and development services performed but not billed at the reporting date. The contract assets are transferred to receivables when the rights become unconditional. Currently, we do not have any contract assets which have not transferred to a receivable. We had no asset impairment charges related to contract assets in the period. The contract liabilities primarily relate to contracts where we received payments but have not yet satisfied the related performance obligations. The advance consideration received from customers for research and development services or licenses bundled with other promises is a contract liability until the underlying performance obligations are transferred to the customer.

The following table provides information about contract assets and contract liabilities from contracts with customers (in thousands):

Year ended December 31, 2020	Balance at beginning of period	Additions	Deductions	Balance at end of period
Contract assets:				
Unbilled receivables from collaboration partners	$ -	$ -	$ -	$ -
Contract liabilities:				
Deferred revenue	$ 56,414	$ 1,400	$ (12,530)	$ 45,284

The change in contract liabilities is primarily related to the recognition of $12.3 million of revenue related to the Gilead Collaboration Agreements and the addition of $1.1 million of deferred revenue from the Betta License Agreement during the year ended December 31, 2020. Deferred revenue related to the Gilead Collaboration Agreements of $44.1 million as of December 31, 2020, which was comprised of the $142.5 million initial transaction price, less $98.4 million of research and development revenue recognized from the effective date of the contract, will be recognized as the combined performance obligation is satisfied.

We also recorded a $1.2 million receivable as of December 31, 2020 for research and development and other services provided.

In the year ended December 31, 2020, we did not recognize any revenue from amounts included in the contract asset or the contract liability balances from performance obligations satisfied in previous periods. None of the costs to obtain or fulfill a contract were capitalized.

(15) Related Party Transactions

Our Audit and Finance Committee approved a charitable contribution to the Children of Armenia Fund (“COAF”) of up to $125,000 for 2020. Dr. Garo H. Armen, our CEO, is the founder and chairman of COAF. The 2020 charitable contribution was comprised of a cash component and a non-cash component. The cash component was $59,000, which we paid in quarterly installments. The non-cash component was $50,000, which was the estimated value of a portion of office space made available to COAF employees.

We also consider our transactions with Incyte and Gilead, as disclosed in Note 14, to be related party transactions.

(16) Leases

The majority of our operating lease agreements are for the office, research and development and manufacturing space we use to conduct our operations.

We lease space in Lexington, Massachusetts for our manufacturing, research and development, and corporate offices, office space in New York, New York for use as corporate offices, facilities in Berkeley, California, for manufacturing and corporate offices, a facility in Emeryville, California for the development of a cGMP manufacturing facility and a facility in Cambridge, United Kingdom for research and development and corporate offices. We have subleased a small portion of the space in our main Lexington facility for part of the associated head lease. These agreements expire at various times between 2022 and 2036, with options to extend certain of the leases.

We also have a finance lease agreement for transportation equipment that expires in 2022.

The components of lease cost recorded in our condensed consolidated statement of operations were as follows (in thousands):

	Year ended December 31, 2020	Year ended December 31, 2019
Operating lease cost	$ 4,698	$ 2,551
Finance lease cost	375	221
Variable lease cost	1,887	1,414
Sublease income	(578)	(561)
Net lease cost	$ 6,382	$ 3,625

Variable lease cost for the years ended December 31, 2020 and 2019, primarily related to common area maintenance, taxes, utilities and insurance associated with our operating leases. Short-term lease cost for the years ended December 31, 2020 and 2019 was immaterial.

Cash paid for amounts included in the measurement of operating lease liabilities for the years ended December 31, 2020 and 2019 was approximately $1.6 million and $1.4 million, respectively. Cash paid for amounts included in the measurement of finance lease liabilities for the year ended December 31, 2020 was approximately $1.8 million.

The following table presents supplemental balance sheet information related to our leases as of December 31, 2020 and 2019 (in thousands):

	As of December 31, 2020	As of December 31, 2019
Operating Leases		
Operating lease right-of-use assets	$ 33,480	$ 7,364
Total operating lease right-of-use assets	33,480	7,364
Current portion, operating lease liabilities	1,950	1,347
Operating lease liabilities, net of current portion	34,065	8,020
Total operating lease liabilities	36,015	9,367
Finance Leases		
Property, plant and equipment, net	2,231	796
Total finance lease right-of-use assets	2,231	796
Other current liabilities	746	148
Other long-term liabilities	66	—
Total finance lease liabilities	$ 812	$ 148

Maturities of our operating lease liabilities as of December 31, 2020 were as follows (in thousands):

Year	Operating Leases	Finance leases	Expected sublease receipts	Net future lease commitments
2021	$ (14,813)	$ 804	$ (595)	$ (14,604)
2022	5,007	67	(613)	4,461
2023	9,486	—	—	9,486
2024	8,279	—	—	8,279
2025	8,473	—	—	8,473
Thereafter	85,638	—	—	85,638
Total	$ 102,070	$ 871	$ (1,208)	$ 101,733
Less imputed interest	(66,055)	(59)		
Present value of lease liabilities	$ 36,015	$ 812		

In the above table, expected operating lease payments for the years ending December 31, 2021 and 2022, include $19.2 million and $2.1 million, respectively in lease incentives expected to be received from the lessor of our Emeryville, CA facility related to the construction of tenant improvements.

The weighted-average remaining lease terms and discount rates related to our operating leases were as follows:

	December 31, 2020	
	Operating	Finance
Weighted average remaining lease term (in years)	11.9	1.1
Weighted average discount rate	12.0%	12.3%

(17) Debt

Debt obligations consisted of the following as of December 31, 2020 and 2019 (in thousands):

Debt instrument	Balance at December 31, 2020
Current Portion:	
Debentures	$ 146
Other	687
Long-term Portion:	
2015 Subordinated Notes	12,682
Other	6,197
Total	$ 19,712

As of December 31, 2020, the principal amount of our outstanding debt balance was $20.0 million.

Debt instrument	Principal at December 31, 2019	Unamortized Debt Discount	Balance at December 31, 2019
Current Portion:			
Debentures	$ 146	$ —	$ 146
2015 Subordinated Notes	$ 500	$ —	$ 500
Long-term Portion:			
2015 Subordinated Notes	13,500	(120)	13,380
Total	$ 14,146	$ (120)	$ 14,026

Subordinated Notes

On February 20, 2015, we, certain existing investors and certain additional investors entered into an Amended and Restated Note Purchase Agreement, pursuant to which we (i) canceled our senior subordinated promissory notes issued in April 2013 (the “2013 Notes”) in exchange for new senior subordinated promissory notes (the “2015 Subordinated Notes”) in the aggregate principal amount of $5.0 million, (ii) issued additional 2015 Subordinated Notes in the aggregate principal amount of $9.0 million and (iii) issued five year warrants (the “2013 Warrants”) to purchase 1,400,000 shares of our common stock at an exercise price of $5.10 per share.

The 2015 Subordinated Notes bear interest at a rate of 8% per annum, payable in cash on the first day of each month in arrears. Among other default and acceleration terms customary for indebtedness of this type, the 2015 Subordinated Notes include default provisions which allow for the noteholders to accelerate the principal payment of the 2015 Subordinated Notes in the event we become involved in certain bankruptcy proceedings, become insolvent, fail to make a payment of principal or (after a grace period) interest on the 2015 Subordinated Notes, default on other indebtedness with an aggregate principal balance of $13.5 million or more if such default has the effect of accelerating the maturity of such indebtedness, or become subject to a legal judgment or similar order for the payment of money in an amount greater than $13.5 million if such amount will not be covered by third-party insurance. The 2015 Subordinated Notes are not convertible into shares of our common stock and are set to mature on February 23, 2023, at which point we would be required to repay the full outstanding balance in cash. We may prepay the 2015 Subordinated Notes at any time, in part or in full, without premium or penalty.

The warrants to purchase 500,000 shares of the Company’s common stock issued in connection with the 2013 Notes (the “2013 Warrants”) had an exercise price of $4.41 per share; and expired on April 15, 2019.

On February 18, 2020, we entered into an amendment to the 2015 Subordinated Notes (the “Amendment”) pursuant to which we:

- extended the maturity date of $13.5 million of the 2015 Subordinated Notes by three years from February 20, 2020 to February 20, 2023;
- repaid $0.5 million of the 2015 Subordinated Notes;
- extended the exercise period of the warrants to purchase 1,350,000 shares of the Company's common stock previously issued in 2015 by three years from February 20, 2020 to February 20, 2023; and
- issued new warrants to purchase 675,000 shares of the Company's common stock with a term of five years and an exercise price of $4.48 per share, which represented a 20% premium over the 30-day average trailing closing price of the Company's common stock as of the date of the Amendment.

The Amendment was accounted for as a debt extinguishment under the guidance of *ASU 470: Debt*. For the year ended December 31, 2020, we recorded a loss of approximately $2.7 million in other expense in our condensed consolidated statements of operations and comprehensive loss, which primarily represents the fair value of the new and extended warrants. The amended 2015 Subordinated Notes were recorded at fair value. In April 2020, we repaid $0.5 million of the outstanding amended 2015 Subordinated Notes and cancelled the related warrants.

Payroll Protection Program

In May 2020, we entered into promissory notes with Bank of America, NA for aggregate loan proceeds of approximately $6.2 million (collectively, the "Loan") under the Small Business Administration (the "SBA") Paycheck Protection Program of the Coronavirus Aid, Relief and Economic Security Act of 2020 (the "CARES Act"). Though we have not yet finalized our forgiveness submission, we believe we used at least 60% of the Loan proceeds for covered payroll costs and no more than 40% of the Loan proceeds for rent and utilities in accordance with the relevant terms and conditions of the CARES Act, as amended by the Paycheck Protection Program Flexibility Act. Each Loan has a two-year term and bears interest at a rate of 1.00% per annum.

The Loan may be forgiven partially or fully if the Loan proceeds are used for covered payroll costs, rent and utilities, provided that such amounts are incurred during the twenty-four week period commencing on receipt of the Loan proceeds, and at least 60% of any forgiven amount has been used for covered payroll costs. Any forgiveness of the Loan will be subject to approval by the SBA and will require us to apply for such treatment in the future.

As we have not yet finalized our forgiveness submission, we cannot yet determine if the Loan will be partially or fully forgiven. Therefore, we have classified the Loan proceeds as debt in our condensed consolidated balance sheet.

Note Purchase Agreement Related to Future Royalties

In January 2018, we through our wholly-owned subsidiary, Antigenics, entered into a Royalty Purchase Agreement (the "HCR Royalty Purchase Agreement") with Healthcare Royalty Partners III, L.P., and certain of its affiliates (collectively "HCR"), and we used $161.9 million of the upfront proceeds from HCR to redeem all of our limited recourse notes (the "Notes") dated September 8, 2015, accordingly, the related note purchase agreement and the Notes issued thereunder were redeemed in full and terminated. In connection with this redemption, we recorded a $10.8 million loss on early extinguishment of debt which primarily reflects the payment of premiums to fully redeem the notes and the write-off of unamortized debt issuance costs and discounts. See Note 18 for additional information on the Royalty Purchase Agreement.

The Notes accrued interest at a rate of 13.5% per annum, compounded quarterly, computed on the basis of a 360-day year and the actual number of days elapsed. The Notes had limited recourse and were secured solely by a first priority security interest in the royalties and accounts and payment intangibles relating thereto plus various rights of Antigenics related to the royalties under its contracts with GSK.

The redemption price was equal to the outstanding principal amount of the Notes, plus all accrued and unpaid interest thereon, plus a premium payment that would yield an aggregate internal rate of return ("IRR") for the purchasers of 17.5% in accordance with the terms of the NPA.

No non-cash interest expense related to the Notes was recorded for the years ended December 31, 2020 and 2019. We recorded $849,000 in non-cash interest expense related to the Notes for the year ended, December 31, 2018, within our consolidated statement of operations and comprehensive loss.

Other

At December 31, 2020, approximately $146,000 of debentures we assumed in our merger with Aquila Biopharmaceuticals are outstanding. These debentures carry interest at 7% and are callable by the holders. Accordingly, they are classified as short-term debt.

(18) Liability Related to the Sale of Future Royalties and Milestones

The following table shows the activity within the liability account in the year ended December 31, 2020 and for the period from the inception of the royalty transactions to December 31, 2020 (in thousands):

	Year ended December 31, 2020	Period from inception to December 31, 2020
Liability related to sale of future royalties and milestones - beginning balance	$ 221,845	$ —
Proceeds from sale of future royalties and milestones	—	205,000
Non-cash royalty and milestone revenue	(47,545)	(95,279)
Non-cash interest expense recognized	59,741	124,320
Liability related to sale of future royalties and milestones - ending balance	234,041	234,041
Less: unamortized transaction costs	(416)	(416)
Liability related to sale of future royalties and milestones, net	$ 233,625	$ 233,625

Healthcare Royalty Partners

On January 6, 2018, we, through Antigenics, entered into the HCR Royalty Purchase Agreement with HCR, which closed on January 19, 2018. Pursuant to the terms of the HCR Royalty Purchase Agreement, we sold to HCR 100% of Antigenics' worldwide rights to receive royalties GSK on sales of GSK's vaccines containing our QS-21 Stimulon adjuvant. At closing, we received gross proceeds of $190.0 million from HCR. As part of the transaction, we reimbursed HCR for transaction costs of $100,000 and incurred approximately $500,000 in transaction costs of our own, which are presented net of the liability in the consolidated balance sheet and will be amortized to interest expense over the estimated life of the HCR Royalty Purchase Agreement. Although we sold all of our rights to receive royalties on sales of GSK's vaccines containing QS-21, we are required to account for these royalties as revenue when earned, and we recorded the $190.0 million in proceeds from this transaction as a liability on our consolidated balance sheet that will be amortized using the interest method over the estimated life of the HCR Royalty Purchase Agreement. The liability is classified between the current and non-current portion of liability related to sale of future royalties and milestones in the consolidated balance sheets based on the estimated recognition of the royalty payments to be received by HCR in the next 12 months from the financial statement reporting date.

In the years ended December 31, 2020, 2019 and 2018, we recognized $46.5 million, $30.4 million and $17.3 million, respectively, of non-cash royalty revenue and we recorded $59.7, $41.5 million and $23.1 million, respectively, of related non-cash interest expense related to the HCR Royalty Purchase Agreement.

As royalties are remitted to HCR from GSK, the balance of the recorded liability will be effectively repaid over the life of the HCR Royalty Purchase Agreement. To determine the amortization of the recorded liability, we are required to estimate the total amount of future royalty payments to be received by HCR. The sum of these amounts less the $190.0 million proceeds we received will be recorded as interest expense over the life of the HCR Royalty Purchase Agreement. Periodically, we assess the estimated royalty payments to be paid to HCR from GSK, and to the extent the amount or timing of the payments is materially different from our original estimates, we will prospectively adjust the amortization of the liability. Since the inception of the HCR Royalty Purchase Agreement our estimate of the effective annual interest rate over the life of the agreement increased to 28.2%, which results in a retrospective interest rate of 23.4%.

There are a number of factors that could materially affect the amount and timing of royalty payments from GSK, all of which are not within our control. Such factors include, but are not limited to, changing standards of care, the introduction of competing products, manufacturing or other delays, biosimilar competition, patent protection, adverse events that result in governmental health authority imposed restrictions on the use of the drug products, significant changes in foreign exchange rates, and other events or circumstances that could result in reduced royalty payments from GSK, all of which would result in a reduction of non-cash royalty revenues and the non-cash interest expense over the life of the HCR Royalty Purchase Agreement. Conversely, if sales of GSK's

vaccines containing QS-21 are more than expected, the non-cash royalty revenues and the non-cash interest expense recorded by us would be greater over the life of the HCR Royalty Purchase Agreement.

Pursuant to the HCR Royalty Purchase Agreement, we were also entitled to receive up to $40.4 million in milestone payments from HCR (through the royalty payments from GSK) based on sales of GSK's vaccines as follows: (i) $15.1 million upon reaching $2.0 billion last-twelve-months net sales any time prior to 2024 and (ii) $25.3 million upon reaching $2.75 billion last-twelve-months net sales any time prior to 2026. In the fourth quarter of 2019, the $15.1 million milestone was achieved, as sales for the year ended December 31, 2019 exceeded $2.0 billion. As such, we recognized $15.1 million in royalty sales milestone revenue in the year ended December 31, 2019. We remain eligible to receive the $25.3 million milestone.

Additionally, pursuant to the HCR Royalty Purchase Agreement, we were obligated to pay HCR approximately $25.9 million in 2021 (the "Rebate Payment") if neither of the following sales milestones are achieved: (i) 2019 sales exceed $1.0 billion or (ii) 2020 sales exceed $1.75 billion. However, we were released from this obligation in the fourth quarter of 2019 when GSK announced that Shingrix sales for the first nine months of 2019 reached 1.28 billion pounds (or approximately $1.6 billion).

XOMA

On September 20, 2018, we, through our wholly-owned subsidiary, Agenus Royalty Fund, LLC, entered into a Royalty Purchase Agreement (the "XOMA Royalty Purchase Agreement") with XOMA (US) LLC ("XOMA"). Pursuant to the terms of the XOMA Royalty Purchase Agreement, XOMA paid us $15.0 million at closing in exchange for the right to receive 33% of the future royalties and 10% of the future milestones that we are entitled to receive from Incyte Corporation ("Incyte") and Merck Sharpe & Dohme ("Merck") under our agreements with each party (see Note 14), net of certain of our obligations to a third party and excluding the $5.0 million milestone from Incyte that we recognized in the quarter ended September 30, 2018. We retained 90% of the future milestones and 67% of the future royalties under our agreements with Incyte and Merck. Although we sold our rights to receive 33% of future royalties and 10% of future milestones, as a result of our significant continued involvement in the generation of the potential royalties and milestones, we are required to account for the full amount of these royalties and milestones as revenue when earned, and we recorded the $15.0 million in proceeds from this transaction as a liability on our consolidated balance sheet. Under the terms of the XOMA Royalty Purchase Agreement, should the percentage of milestones and royalties ultimately received by XOMA fail to repay the amount received by us at closing we would have no further obligation to XOMA.

In the fourth quarter of 2020, we achieved a $10.0 million milestone under the Merck agreement. As such, we recorded $1.0 million in non-cash milestone revenue related to the XOMA Royalty Purchase Agreement for the year ended December 31, 2020 and reduced the XOMA liability by $1.0 million.

(19) Fair Value Measurements

We measure our contingent purchase price consideration at fair value. The fair values of our Agenus Switzerland, PhosImmune and other contingent purchase price consideration, $8.3 million, $1.6 million and $0.3 million respectively, are based on significant inputs not observable in the market, which require them to be reported as Level 3 liabilities within the fair value hierarchy. The valuation of these liabilities use assumptions we believe would be made by a market participant and are mainly based on estimates from a Monte Carlo simulation of our market capitalization and share price, as well as other factors impacting the probability of triggering the milestone payments. Market capitalization and share price were evolved using a geometric Brownian motion, calculated daily for the life of the contingent purchase price considerations.

The significant unobservable inputs include the anticipated timelines to achieve the contingent purchase milestones and our estimated credit spread, the weighted average values of which (weighted based on the value of each contingent liability), as of December 31, 2020, are shown in the table below.

	December 31, 2020	December 31, 2019
Period of time to achieve milestones (in years)	1.3	1.7
Credit spread	5.5%	16.4%

Liabilities measured at fair value are summarized below (in thousands):

Description	December 31, 2020	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Contingent purchase price consideration	10,208	—	—	10,208
Total	$ 10,208	$ —	$ —	$ 10,208

Description	December 31, 2019	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Contingent purchase price consideration	8,843	—	—	8,843
Total	$ 8,843	$ —	$ —	$ 8,843

The following table presents our liabilities measured at fair value using significant unobservable inputs (Level 3), as of December 31, 2020 (amounts in thousands):

Balance, December 31, 2019	$ 8,843
Change in fair value of contingent purchase price consideration during the period	1,221
Addition of contingent purchase price consideration related to business acquisition	144
Balance, December 31, 2020	$ 10,208

There were no changes in the valuation techniques during the period and there were no transfers into or out of Levels 1 and 2.

The fair value of our outstanding debt balance at December 31, 2020 and 2019 was $19.9 million and $14.2 million, respectively, based on the Level 2 valuation hierarchy of the fair value measurements standard using a present value methodology which was derived by evaluating the nature and terms of each note and considering the prevailing economic and market conditions at the balance sheet date. The principal amount of our outstanding debt balance at December 31, 2020 and 2019 was $20.0 million and $14.1, respectively.

(20) Contingencies

We may currently be, or may become, a party to legal proceedings. While we currently believe that the ultimate outcome of any of these proceedings will not have a material adverse effect on our financial position, results of operations, or liquidity, litigation is subject to inherent uncertainty. Furthermore, litigation consumes both cash and management attention.

(21) Benefit Plans

We sponsor a defined contribution 401(k) Savings Plan in the US and a defined contribution Group Personal Pension Plan in the UK (the “Plans”) for all eligible employees, as defined in the Plans. Participants may contribute a portion of their compensation, subject to a maximum annual amount, as established by the applicable taxing authority. Each participant is fully vested in his or her contributions and related earnings and losses. During the years ended December 31, 2020, 2019, and 2018 we made discretionary contributions to the Plans of $1.1 million, $922,000, and $617,000, respectively. For the years ended December 31, 2020, 2019, and 2018, we expensed $1.1 million, $922,000, and $617,000, respectively, related to the discretionary contribution to the Plans.

(22) Geographic Information

The following is geographical information regarding our revenues for the years ended December 31, 2020, 2019 and 2018 and our long-lived assets as of December 31, 2020 and 2019 (in thousands):

	2020	2019	2018
Revenue:			
United States	$ 83,551	$ 149,358	$ 32,784
Rest of world	4,619	690	4,000
	$ 88,170	$ 150,048	$ 36,784

In the table above, revenue by geographic region is allocated based on the domicile of our respective business operations.

	2020	2019
Long-lived Assets:		
United States	$ 27,611	$ 23,822
Rest of world	3,302	3,921
Total	$ 30,913	$ 27,743

In the table above, long-lived assets include “Property, plant and equipment, net” and “Other long-term assets” from the consolidated balance sheets, by the geographic location where the asset resides.

(23) Quarterly Financial Data (Unaudited)

	Quarter Ended			
	March 31,	June 30,	September 30,	December 31,
2020				
Revenue	$ 15,128	$ 26,945	$ 14,832	$ 31,265
Net income (loss)	(45,271)	(48,244)	(51,646)	(37,730)
Net income (loss) attributable to Agenus Inc. common shareholders	(44,726)	(47,532)	(51,205)	(37,660)
Per common share, basic and diluted:				
Basic and diluted net loss attributable to Agenus Inc. common stockholders	(0.31)	(0.28)	(0.28)	(0.20)
2019				
Revenue	$ 79,891	$ 15,715	$ 19,940	$ 34,502
Net income (loss)	17,435	(51,867)	(46,277)	(30,851)
Net income (loss) attributable to Agenus Inc. common shareholders	18,454	(50,686)	(45,526)	(30,107)
Per common share, basic and diluted:				
Basic net income (loss) attributable to Agenus Inc. common stockholders	0.14	(0.38)	(0.33)	(0.22)
Diluted net income (loss) attributable to Agenus Inc. common stockholders	0.12	(0.38)	(0.33)	(0.22)

Net loss attributable to common stockholders per share is calculated independently for each of the quarters presented. Therefore, the sum of the quarterly net loss per share amounts will not necessarily equal the total for the full fiscal year.

(24) Subsequent Events

At the Market Offerings

During the period of January 1, 2021 through March 12, 2021, we sold approximately 9.1 million shares of our common stock under the New Sales Agreement for aggregate net proceeds of approximately $31.8 million.

Item 9. ***Changes in and Disagreements With Accountants on Accounting and Financial Disclosure***

Not applicable.

Item 9A. ***Controls and Procedures***

Conclusion Regarding the Effectiveness of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Executive Officer and Principal Financial Officer, we conducted an evaluation of the effectiveness of our disclosure controls and procedures, as such term is defined under Rule 13a-15(e) promulgated under the Exchange Act. Based on this evaluation, our Chief Executive Officer and our Principal Financial Officer concluded that our disclosure controls and procedures were functioning effectively as of the end of the period covered by this Annual Report on Form 10-K to provide reasonable assurance that the Company can meet its disclosure obligations.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Under the supervision and with the participation of our management, including our Chief Executive Officer and Principal Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in *Internal Control—Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework, our management concluded that our internal control over financial reporting was effective as of December 31, 2020.

KPMG LLP, our independent registered public accounting firm, has issued their report, included herein, on the effectiveness of our internal control over financial reporting.

Changes in Internal Control Over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the fourth quarter 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Agenus Inc.:

Opinion on Internal Control Over Financial Reporting

We have audited Agenus Inc. and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2020 and 2019, the related consolidated statements of operations and comprehensive loss, convertible preferred stock and stockholders' deficit, and cash flows for each of the years in the three-year period ended December 31, 2020, and the related notes (collectively, the consolidated financial statements), and our report dated March 16, 2021 expressed an unqualified opinion on those *consolidated* financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG LLP

Boston, Massachusetts
March 16, 2021

Item 9B. ***Other Information***

None.

PART III

Item 10. ***Directors, Executive Officers and Corporate Governance***

The information required by this Item is incorporated herein by reference to the information that will be contained in our proxy statement related to the 2021 Annual Meeting of Stockholders, which we intend to file with the Securities and Exchange Commission within 120 days of the end of our fiscal year pursuant to General Instruction G(3) of Form 10-K.

Item 11. ***Executive Compensation***

The information required by this Item is incorporated herein by reference to the information that will be contained in our proxy statement related to the 2021 Annual Meeting of Stockholders, which we intend to file with the Securities and Exchange Commission within 120 days of the end of our fiscal year pursuant to General Instruction G(3) of Form 10-K.

Item 12. ***Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters***

The information required by this Item is incorporated herein by reference to the information that will be contained in our proxy statement related to the 2021 Annual Meeting of Stockholders, which we intend to file with the Securities and Exchange Commission within 120 days of the end of our fiscal year pursuant to General Instruction G(3) of Form 10-K.

Item 13. ***Certain Relationships and Related Transactions, and Director Independence***

The information required by this Item is incorporated herein by reference to the information that will be contained in our proxy statement related to the 2021 Annual Meeting of Stockholders, which we intend to file with the Securities and Exchange Commission within 120 days of the end of our fiscal year pursuant to General Instruction G(3) of Form 10-K.

Item 14. ***Principal Accounting Fees and Services***

The information required by this Item is incorporated herein by reference to the information that will be contained in our proxy statement related to the 2021 Annual Meeting of Stockholders, which we intend to file with the Securities and Exchange Commission within 120 days of the end of our fiscal year pursuant to General Instruction G(3) of Form 10-K.

PART IV

Item 15. ***Exhibits and Financial Statement Schedules***

(a) 1. *Consolidated Financial Statements*

The consolidated financial statements are listed under Item 8 of this Annual Report on Form 10-K.

2. *Financial Statement Schedules*

The financial statement schedules required under this Item and Item 8 are omitted because they are not applicable, or the required information is shown in the consolidated financial statements or the footnotes thereto.

3. *Exhibits*

The exhibits are listed below under Part IV Item 15(b).

(b) Exhibits

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation of Antigenics Inc. Filed as Exhibit 3.1 to our Current Report on Form 8-K (File No. 0-29089) filed on June 10, 2002 and incorporated herein by reference.
3.1.1	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of Antigenics Inc. Filed as Exhibit 3.1 to our Current Report on Form 8-K (File No. 0-29089) filed on June 11, 2007 and incorporated herein by reference.
3.1.2	Certificate of Ownership and Merger changing the name of the corporation to Agenus Inc. Filed as Exhibit 3.1 to our Current Report on Form 8-K (File No. 0-29089) filed on January 6, 2011 and incorporated herein by reference.
3.1.3	Certificate of Second Amendment to the Amended and Restated Certificate of Incorporation of Agenus Inc. Filed as Exhibit 3.1 to our Current Report on Form 8-K (File No. 0-29089) filed on September 30, 2011 and incorporated herein by reference.
3.1.4	Certificate of Third Amendment to the Amended and Restated Certificate of Incorporation of Agenus Inc. Filed as Exhibit 3.1.4 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended June 30, 2012 and incorporated herein by reference.
3.1.5	Certificate of Fourth Amendment to the Amended and Restated Certificate of Incorporation of Agenus Inc. Filed as Exhibit 3.1 to our Current Report on Form 8-K (File No. 0-29089) filed on April 25, 2014 and incorporated herein by reference.
3.1.6	Certificate of Fifth Amendment to the Amended and Restated Certificate of Incorporation of Agenus Inc. Filed as Exhibit 3.1 to our Current Report on Form 8-K (File No. 0-29089) filed on June 16, 2016 and incorporated herein by reference.
3.1.7	Certificate of Sixth Amendment to the Amended and Restated Certificate of Incorporation of Agenus Inc. Filed as Exhibit 3.1 to our Current Report on Form 8-K (File No. 0-29089) filed on June 24, 2019 and incorporated herein by reference.
3.2	Fifth Amended and Restated By-laws of Agenus Inc. Filed as Exhibit 3.2 to our Current Report on Form 8-K (File No. 0-29089) filed on January 6, 2011 and incorporated herein by reference.
3.3	Certificate of Designations, Preferences and Rights of the Series A-1 Convertible Preferred Stock of Agenus Inc. Filed as Exhibit 3.1 to our Current Report on Form 8-K (File No. 0-29089) filed on February 5. 2013 and incorporated herein by reference.
3.4	Form of Certificate of Designation of Preferences, Rights and Limitations of Series C-1 Convertible Preferred Stock. Filed as Exhibit 3.1 to our Current Report on Form 8-K (File No. 0-29089) filed on October 11, 2018 and incorporated herein by reference.
4.1	Form of Common Stock Certificate. Filed as Exhibit 4.1 to our Current Report on Form 8-K (File No. 0-29089) filed on January 6, 2011 and incorporated herein by reference.

Exhibit No.	Description
4.2	Securities Exchange Agreement dated as of February 4, 2013 by and between Agenus Inc., and Mr. Brad Kelley. Filed as Exhibit 10.1 to our Current Report on Form 8-K (File No. 0-29089) filed on February 5, 2013 and incorporated herein by reference.
4.3	Amended and Restated Note Purchase Agreement dated as of February 20, 2015, as amended, by and between Agenus Inc. and the Purchasers listed on Schedule 1.1 thereto. Filed as Exhibit 4.2 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended March 31, 2015 and incorporated herein by reference.
4.4	Form of Senior Subordinated Note under the Amended and Restated Note Purchase Agreement dated as of February 20, 2015, as amended, by and between Agenus Inc. and the Purchasers listed on Schedule 1.1 thereto. Filed as Exhibit 4.3 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended March 31, 2015 and incorporated herein by reference.
4.5	Form of Warrant under the Amended and Restated Note Purchase Agreement dated as of February 20, 2015, as amended, by and between Agenus Inc. and the Purchasers listed on Schedule 1.1 thereto. Filed as Exhibit 4.4 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended March 31, 2015 and incorporated herein by reference.
4.6	Amendment to Notes and Warrants dated as of March 15, 2017 by and among Agenus Inc. and the Investors listed therein. Filed as Exhibit 4.27 to our Annual Report on Form 10-K (File No. 0-29089) for the year ended December 31, 2016 and incorporated herein by reference.
4.7	Amendment to Notes and Warrants dated as of February 18, 2020 by and among Agenus Inc. and the Investors listed therein. Filed as Exhibit 4.7 to our Annual Report on form 10-K (File No. 0-29089) for the year ended December 31, 2019 and incorporated herein by reference.
4.8	Form of Warrant under the Amended and Restated Note Purchase Agreement dated as of February 18, 2020. Filed as Exhibit 4.8 to our Annual Report on form 10-K (File No. 0-29089) for the year ended December 31, 2019 and incorporated herein by reference.
4.9	Form of Indenture. Filed as Exhibit 4.1 to our Registration Statement on Form S-3 (File No. 333-221008) and incorporated herein by reference.
4.10	Royalty Purchase Agreement dated January 6, 2018, by and among Antigenics LLC, Healthcare Royalty Partners III, L.P. and certain of its affiliates. Filed as Exhibit 4.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended March 31, 2018 and incorporated herein by reference.
4.11	Royalty Purchase Agreement dated September 20, 2018, by and among Agenus Inc., Agenus Royalty Fund, LLC and XOMA (US) LLC. Filed as Exhibit 4.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended September 30, 2018 and incorporated herein by reference.
4.12	Description of Securities. Filed as Exhibit 4.12 to our Annual Report on form 10-K (File No. 0-29089) for the year ended December 31, 2019 and incorporated herein by reference.
	Employment Agreements and Compensation Plans
10.1*	Agenus Inc. Amended and Restated 2009 Equity Incentive Plan. Filed as Exhibit 10.1 to our Current Report on Form 8-K (File No. 0-29089) filed on June 16, 2016 and incorporated herein by reference.
10.1.1*	Form of Restricted Stock Award Agreement for the Agenus Inc. Amended and Restated 2009 Equity Incentive Plan. Filed as Exhibit 10.2 to our Current Report on Form 8-K (File No. 0-29089) filed on June 15, 2009 and incorporated herein by reference.
10.1.2*	Form of Restricted Stock Unit Agreement for the Agenus Inc. Amended and Restated 2009 Equity Incentive Plan. Filed as Exhibit 10.2 to our Current Report on Form 8-K (File No. 0-29089) filed on June 30, 2015 and incorporated herein by reference.
10.1.3*	Form of Stock Option Agreement for the Agenus Inc. Amended and Restated 2009 Equity Incentive Plan. Filed as Exhibit 10.3 to our Current Report on Form 8-K (File No. 0-29089) filed on June 15, 2009 and incorporated herein by reference.
10.2	Agenus Inc. Amended and Restated Directors' Deferred Compensation Plan. Filed as Appendix B to our Definitive Proxy Statement on Schedule 14A filed on April 26, 2018 and incorporated herein by reference.

Exhibit No.	Description
10.2.1	Amendment to Agenus Amended and Restated Directors' Deferred Compensation Plan. Filed as Appendix A to our Definitive Proxy Statement on Schedule 14A filed on April 28, 2020 and incorporated herein by reference.
10.3*	Amended and Restated Executive Change-in-Control Plan applicable to Christine M. Klaskin. Filed as Exhibit 10.1 to our Current Report on Form 8-K (File No. 0-29089) filed on November 3, 2010 and incorporated herein by reference.
10.3.1*	Modification of Rights in the Event of a Change of Control, dated as of June 14, 2012, by and between Agenus Inc. and Christine Klaskin. Filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended June 30, 2012 and incorporated herein by reference.
10.4*	2004 Executive Incentive Plan, as amended. Filed as Exhibit 10.1 to our Current Report on Form 8-K (File No. 0-29089) filed on January 27, 2011 and incorporated herein by reference.
10.4.1*	Agenus Inc. 2016 Executive Incentive Plan. Filed as Exhibit 10.2 to our Current Report on Form 8-K (File No. 0-29089) filed on June 16, 2016 and incorporated herein by reference.
10.5*	Employment Agreement dated December 1, 2005 between Agenus Inc. and Garo Armen. Filed as Exhibit 10.1 to our Current Report on Form 8-K (File No. 0-29089) filed on December 7, 2005 and incorporated herein by reference.
10.5.1*	First Amendment to Employment Agreement dated July 2, 2009 between Agenus Inc. and Garo Armen. Filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended September 30, 2009 and incorporated herein by reference.
10.5.2*	Second Amendment to Employment Agreement dated December 15, 2010 between Agenus Inc. and Garo Armen. Filed as Exhibit 10.12.2 to our Annual Report on Form 10-K (File No. 0-29089) for the year ended December 31, 2010 and incorporated herein by reference.
10.6*	Agenus Inc. 2015 Inducement Equity Plan. Filed as Exhibit 4.14 to our Registration Statement on Form S-8 (File No. 333-209074) filed on January 21, 2016 and incorporated herein by reference.
10.6.1*	Form of Stock Option Agreement for the Agenus Inc. 2015 Inducement Equity Plan. Filed as Exhibit 4.15 to our Registration Statement on Form S-8 (File No. 333-209074) filed on January 21, 2016 and incorporated herein by reference.
10.6.2*	Form of Restricted Stock Award Agreement for the Agenus Inc. 2015 Inducement Equity Plan. Filed as Exhibit 4.16 to our Registration Statement on Form S-8 (File No. 333-209074) filed on January 21, 2016 and incorporated herein by reference.
10.6.3*	Form of Restricted Stock Unit Agreement for the Agenus Inc. 2015 Inducement Equity Plan. Filed as Exhibit 4.17 to our Registration Statement on Form S-8 (File No. 333-209074) filed on January 21, 2016 and incorporated herein by reference.
10.7*	Executive Employment Agreement dated August 8, 2019 between Agenus Inc. and Jennifer Buell. Filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q (File No. 0-29089) filed on August 9, 2019 and incorporated herein by reference.
10.9	Agenus Inc. 2019 Employee Stock Purchase Plan. Filed as Exhibit 4.11 to our Registration Statement on Form S-8 (File No. 333-233100) filed on August 7, 2019 and incorporated herein by reference.
10.10*	Agenus Inc. 2019 Equity Incentive Plan. Filed as Appendix B to our Definitive Proxy Statement on Schedule 14A filed on April 26, 2019 and incorporated herein by reference.
10.10.1*	Form of Incentive Stock Option Agreement for the Agenus Inc. 2019 Equity Incentive Plan. Filed as Exhibit 10.10.1 to our Annual Report on form 10-K (File No. 0-29089) for the year ended December 31, 2019 and incorporated herein by reference.
10.10.2*	Form of Non-Qualified Stock Option Agreement for the Agenus Inc. 2019 Equity Incentive Plan. Filed as Exhibit 10.10.2 to our Annual Report on form 10-K (File No. 0-29089) for the year ended December 31, 2019 and incorporated herein by reference.
10.10.3*	Form of Restricted Stock Unit Award Agreement for the Agenus Inc. 2019 Equity Incentive Plan. Filed as Exhibit 10.10.3 to our Annual Report on form 10-K (File No. 0-29089) for the year ended December 31, 2019 and incorporated herein by reference.

Exhibit No.	Description
10.11	Consulting Agreement dated January 1, 2020 between Agenus Inc. and Brian Corvese. Filed as Exhibit 4.2 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended March 31, 2020 and incorporated herein by reference.
10.12	Executive Employment Agreement dated November 6, 2020, by and between Agenus Inc. and Evan Kearns. Filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended September 30, 2020 and incorporated herein by reference.
	License and Collaboration Agreements
10.13(1)	License Agreement by and between Agenus Inc. and GlaxoSmithKline Biologicals SA dated July 6, 2006. Filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended June 30, 2006 and incorporated herein by reference.
10.14(1)	Amended and Restated Manufacturing Technology Transfer and Supply Agreement by and between Agenus Inc. and GlaxoSmithKline Biologicals SA dated January 19, 2009. Filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended March 31, 2009 and incorporated herein by reference.
10.15(1)	First Right to Negotiate and Amendment Agreement between Agenus Inc., Antigenics LLC and GlaxoSmithKline Biologicals SA, dated March 2, 2012. Filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended March 31, 2012 and incorporated herein by reference.
10.16(1)	License Agreement dated as of December 5, 2014 by and between 4-Antibody AG, a limited liability company organized under the laws of Switzerland (and wholly-owned subsidiary of Agenus Inc.) and Ludwig Institute for Cancer Research Ltd. Filed as Exhibit 10.21 to our Annual Report on Form 10-K (File No. 0-29089) for the year ended December 31, 2014 and incorporated herein by reference.
10.17.1(1)	License, Development and Commercialization Agreement dated as of January 9, 2015 by and among Agenus Inc., 4-Antibody AG, a limited liability company organized under the laws of Switzerland (and wholly-owned subsidiary of Agenus Inc.), Incyte Corporation and Incyte Europe Sarl, a Swiss limited liability company (and wholly-owned subsidiary of Incyte Corporation). Filed as Exhibit 10.22 to our Annual Report on Form 10-K (File No. 0-29089) for the year ended December 31, 2014 and incorporated herein by reference.
10.17.2(1)	First Amendment to License, Development and Commercialization Agreement dated as of February 14, 2017 by and among Agenus Inc., Agenus Switzerland Inc. (f/k/a 4-Antibody AG) and Incyte Europe Sarl. Filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended March 31, 2017 and incorporated herein by reference.
10.18(1)	License Agreement dated March 19, 2013, as amended, by and between the University of Virginia Patent Foundation d/b/a University of Virginia Licensing and Ventures Group and Agenus Inc. (as successor by merger to PhosImmune Inc.). Filed as Exhibit 10.24 to our Annual Report on Form 10-K (File No. 0-29089) for the year ended December 31, 2015 and incorporated herein by reference.
10.19(1)	License Agreement dated as of January 25, 2016 by and among Agenus Inc., 4-Antibody AG, a limited liability company organized under the laws of Switzerland (and wholly-owned subsidiary of Agenus Inc.), and Ludwig Institute for Cancer Research Ltd. Filed as Exhibit 10.25 to our Annual Report on Form 10-K (File No. 0-29089) for the year ended December 31, 2015 and incorporated herein by reference.
10.20(1)	Development and Manufacturing Services Agreement dated April 14, 2017 by and between Agenus Inc. and CMC ICOS Biologics, Inc. Filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended June 30, 2017 and incorporated herein by reference.
10.21(1)	License Agreement dated December 20, 2018, by and between Agenus Inc. and Gilead Sciences, Inc. Filed as Exhibit 10.25 to our Annual Report on Form 10-K (File No. 0-29089) for the year ended December 31, 2018 and incorporated herein by reference.
10.22(1)	Option and License Agreement (AGEN1223) dated December 20, 2018, by and between Agenus Inc. and Gilead Sciences, Inc. Filed as Exhibit 10.26 to our Annual Report on Form 10-K (File No. 0-29089) for the year ended December 31, 2018 and incorporated herein by reference.
10.23(1)	Option and License Agreement (AGEN2373) dated December 20, 2018, by and between Agenus Inc. and Gilead Sciences, Inc. Filed as Exhibit 10.27 to our Annual Report on Form 10-K (File No. 0-29089) for the year ended December 31, 2018 and incorporated herein by reference.

Exhibit No.	Description
10.24(1)	License and Collaboration Agreement, dated as of June 20, 2020, by and between Agenus Inc. and Betta Pharmaceuticals Co., Ltd. Filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended June 30, 2020 and incorporated herein by reference.
	Real Estate Leases
10.25	Lease of Premises at 3 Forbes Road, Lexington, Massachusetts dated as of December 6, 2002 from BHX, LLC, as Trustee of 3 Forbes Realty Trust, to Agenus Inc. Filed as Exhibit 10.1 to our Current Report on Form 8-K (File No. 0-29089) filed on January 8, 2003 and incorporated herein by reference.
10.25.1	First Amendment of Lease dated as of August 15, 2003 from BHX, LLC, as trustee of 3 Forbes Road Realty, to Agenus Inc. Filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended March 31, 2004 and incorporated herein by reference.
10.25.2	Second Amendment of Lease dated as of March 7, 2007 from BHX, LLC as trustee of 3 Forbes Road Realty, to Agenus Inc. Filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended March 31, 2007 and incorporated herein by reference.
10.25.3	Third Amendment to Lease dated April 23, 2008 between TBCI, LLC, as successor to BHX, LLC, as Trustee of 3 Forbes Road Realty Trust, and Agenus Inc. Filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended June 30, 2008 and incorporated herein by reference.
10.25.4	Fourth Amendment to Lease dated September 30, 2008 between TBCI, LLC, as successor to BHX, LLC, as Trustee of 3 Forbes Road Realty Trust, and Agenus Inc. Filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended September 30, 2008 and incorporated herein by reference.
10.25.5	Fifth Amendment to Lease dated April 11, 2011 between TBCI, LLC, as successor to BHX, LLC, as Trustee of 3 Forbes Road Realty Trust, and Agenus Inc. Filed as Exhibit 10.3 to our Quarterly Report on Form 10-Q (File No. 0-29089) for the quarter ended March 31, 2011 and incorporated herein by reference.
10.26	Office Lease by and between Bay Center Investor LLC and Agenus Inc. dated November 25, 2020. Filed as Exhibit 10.1 to our Current Report on Form 8-K (File No. 0-29089) filed on November 25, 2020 and incorporated herein by reference.
	Sales Agreement
10.27	Sales Agreement dated May 11, 2018 by and between Agenus Inc. and B. Riley FBR, Inc. Filed as Exhibit 1.1 to the Current Report on Form 8-K filed by the Company on May 11, 2018 and incorporated by reference.
10.28	At Market Issuance Sales Agreement dated July 22, 2020 by and between Agenus Inc. and B. Riley FBR, Inc. Filed as Exhibit 1.2 to our Registration Statement on Form S-3ASR (File No. 333-240006) on July 22, 2020 and incorporated herein by reference.
21.1	Subsidiaries of Agenus Inc. Filed herewith.
23.1	Consent of KPMG LLP, independent registered public accounting firm. Filed herewith.
31.1	Certification of Chief Executive Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as amended. Filed herewith.
31.2	Certification of Principal Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as amended. Filed herewith.
32.1	Certification of Chief Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. Submitted herewith.
101.INS	XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document)
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document

Exhibit No.	Description
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

* Indicates a management contract or compensatory plan.

(1) Certain confidential material contained in the document has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act or Rule 24b-2 of the Securities Exchange Act.

Item 16. ***Form 10-K Summary***

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

AGENUS INC.

By: /s/ GARO H. ARMEN, PH.D.

Garo H. Armen, Ph.D.

Chief Executive Officer and

Chairman of the Board

Dated: March 16, 2021

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/S/ GARO H. ARMEN, PH.D. **Garo H. Armen, Ph.D.**	Chief Executive Officer and Chairman of the Board of Directors (Principal Executive Officer)	March 16, 2021
/S/ CHRISTINE M. KLASKIN **Christine M. Klaskin**	Vice President Finance (Principal Financial and Accounting Officer)	March 16, 2021
/S/ PAUL CLARK **Paul Clark**	Director	March 16, 2021
/S/ BRIAN CORVESE **Brian Corvese**	Director	March 16, 2021
/S/ SUSAN HIRSCH **Susan Hirsch**	Director	March 16, 2021
/S/ ALLISON JEYNES-ELLIS **Allison Jeynes-Ellis**	Director	March 16, 2021
/S/ WADIH JORDAN **Wadih Jordan**	Director	March 16, 2021
/S/ ULF WIINBERG **Ulf Wiinberg**	Director	March 16, 2021
/S/ TIMOTHY R. WRIGHT **Timothy R. Wright**	Director	March 16, 2021

EXHIBIT 21.1

SUBSIDIARIES OF AGENUS INC.

Antigenics LLC., a Delaware limited liability company and a wholly-owned subsidiary of Agenus Inc.

Agenus Royalty Fund, LLC, a Delaware limited liability company and a wholly-owned subsidiary of Agenus Inc.

Agenus Switzerland Inc., a joint stock company organized under the laws of Switzerland formerly known as 4-Antibody AG, and a wholly-owned subsidiary of Agenus Inc.

Agenus West, LLC, a Delaware limited liability company and a wholly-owned subsidiary of Agenus Inc.

Agenus UK Limited, a private limited company organized under the laws of England and Wales and a wholly-owned subsidiary of Agenus Inc.

AgenTus Therapeutics, Inc., a Delaware corporation and a majority-owned subsidiary of Agenus Inc.

AgenTus Therapeutics Limited, a private limited company organized under the laws of England and Wales and a wholly-owned subsidiary of AgenTus Therapeutics, Inc.

AgenTus Therapeutics SA, a company organized under the laws of Belgium and a wholly-owned subsidiary of AgenTus Therapeutics, Inc.

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Agenus Inc.:

We consent to the incorporation by reference in the registration statements (Nos. 333-40440, 333-40442, 333-50434, 333-69580, 333-106072, 333-115984, 333-143807, 333-143808, 333-151745, 333-160084, 333-160087, 333-160088, 333-176609, 333-183066, 333-183067, 333-189926, 333-195851, 333-209074, 333-212889, 333-228271, 333-233097, and 333-233100) on Form S-8 and (Nos. 333-163221, 333-189534, 333-195852, 333-203807, 333-206513, 333-208135, 333-208890, 333-209749, 333-209941, 333-215640, 333-221465, 333-222670, 333-228273, 333-234333 and 333-240006) on Form S-3 of Agenus Inc. of our reports dated March 16, 2021, with respect to the consolidated balance sheets of Agenus Inc. and subsidiaries (the Company) as of December 31, 2020 and 2019, the related consolidated statements of operations and comprehensive loss, convertible preferred stock and stockholders' deficit, and cash flows for each of the years in the three-year period ended December 31, 2020, and the related notes and the effectiveness of internal control over financial reporting as of December 31, 2020, which reports appear in the December 31, 2020 annual report on Form 10-K of the Company.

Our report on the consolidated financial statements refers to a change in the Company's method of accounting for leases as of January 1, 2019, due to the adoption of Accounting Standards Update 2016-02, Leases (Topic 842), as amended.

Our report on the consolidated financial statements contains an explanatory paragraph that states that the Company's recurring losses from operations and net capital deficiency raise substantial doubt about the entity's ability to continue as a going concern. The consolidated financial statements do not include any adjustments that might result from the outcome of that uncertainty.

/s/ KPMG LLP

Boston, Massachusetts
March 16, 2021

Exhibit 31.1

Certification Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as amended

I, Garo H. Armen, certify that:

1. I have reviewed this Annual Report on Form 10-K of Agenus Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report;

4. The Registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Registrant and have:

   a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles;

   c. evaluated the effectiveness of the Registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d. disclosed in this report any change in the Registrant's internal control over financial reporting that occurred during the Registrant's most recent fiscal quarter (the Registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the Registrant's internal control over financial reporting; and

5. The Registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant's auditors and the audit committee of the Registrant's board of directors (or persons performing the equivalent function):

   a. all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant's ability to record, process, summarize and report financial information; and

   b. any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant's internal control over financial reporting.

Date: March 16, 2021

/s/ GARO H. ARMEN, PH.D.

Garo H. Armen, Ph.D.
Chief Executive Officer and Principal Executive Officer

Exhibit 31.2

Certification Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as amended

I, Christine M. Klaskin, certify that:

1. I have reviewed this Annual Report on Form 10-K of Agenus Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report;

4. The Registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Registrant and have:

   a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles;

   c. evaluated the effectiveness of the Registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d. disclosed in this report any change in the Registrant's internal control over financial reporting that occurred during the Registrant's most recent fiscal quarter (the Registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the Registrant's internal control over financial reporting; and

5. The Registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant's auditors and the audit committee of the Registrant's board of directors (or persons performing the equivalent function):

   a. all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant's ability to record, process, summarize and report financial information; and

   b. any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant's internal control over financial reporting.

Date: March 16, 2021

/s/ CHRISTINE M. KLASKIN

Christine M. Klaskin
VP, Finance and Principal Financial Officer

Exhibit 32.1

Certification
Pursuant to 18 U.S.C. Section 1350,
As Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

In connection with the Annual Report on Form 10-K of Agenus Inc. (the "Company") for the year ended December 31, 2020 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned to his/her knowledge hereby certifies, pursuant to 18 U.S.C. Section 1350, that:

(i) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(ii) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ GARO H. ARMEN, PH.D.
Garo H. Armen, Ph.D.
Chief Executive Officer and Principal Executive Officer

/s/ CHRISTINE M. KLASKIN
Christine M. Klaskin
VP, Finance and Principal Financial Officer

Date: March 16, 2021

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

The foregoing certification is being furnished to the Securities and Exchange Commission as an exhibit to the Annual Report on Form 10-K for the year ended December 31, 2020 and should not be considered filed as part of the Annual Report on Form 10-K.