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, 2021

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

Commission File No. 001-36913

KemPharm, Inc.
(Exact Name of Registrant as Specified in Its Charter)

Delaware **(State or Other Jurisdiction of Incorporation or Organization)**	**20-5894398** **(I.R.S. Employer Identification No.)**
1180 Celebration Boulevard, Suite 103, Celebration, FL 34747 **(Address of Principal Executive Offices and Zip Code)**	**(321) 939-3416** **(Registrant's Telephone Number, Including Area Code)**

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

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Common Stock, $0.0001 par value	**KMPH**	**The Nasdaq Stock Market LLC (Nasdaq Global Select Market)**

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

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

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or 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 during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

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

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

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant as of June 30, 2021, the last business day of the registrant's most recently completed second fiscal quarter, was approximately $446.2 million, based upon the closing sales price for the registrant's common stock, as reported on the Nasdaq Capital Market on June 30, 2021. The calculation of the aggregate market value of voting and non-voting common equity excludes 173,553 shares of common stock the registrant held by executive officers, directors and stockholders that the registrant concluded were affiliates of the registrant on that date. Exclusion of such shares should not be construed to indicate that any such person possesses the power, direct or indirect, to direct or cause the direction of management or policies of the registrant or that such person is controlled by or under common control with the registrant.

As of March 29, 2022, the registrant had 34,422,503 shares of common stock outstanding.

Documents Incorporated by Reference

None.

KEMPHARM, INC.
FORM 10-K

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K, including the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations," contains forward-looking statements regarding future events and our future results that are subject to the safe harbors created under the Securities Act of 1933, as amended, or the Securities Act, and the Securities Exchange Act of 1934, as amended, or the Exchange Act. Forward-looking statements relate to future events or our future financial performance. We generally identify forward-looking statements by terminology such as "may," "will," "would," "should," "expects," "plans," "anticipates," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "assume," "intend," "potential," "continue" or other similar words or the negative of these terms. We have based these forward-looking statements largely on our current expectations about future events and financial trends that we believe may affect our business, financial condition and results of operations. The outcome of the events described in these forward-looking statements is subject to risks, uncertainties and other factors described in "Risk Factors" and elsewhere in this report. Accordingly, you should not place undue reliance upon these forward-looking statements. We cannot assure you that the events and circumstances reflected in the forward-looking statements will be achieved or occur, the timing of events and circumstances and actual results could differ materially from those anticipated in the forward-looking statements. Forward-looking statements contained in this report include, but are not limited to, statements about:

- *the progress of, outcome or and timing of any regulatory approval for any of our product candidates and the expected amount or timing of any payment related thereto under any of our collaboration agreements;*
- *the progress of, timing of and expected amount of expenses associated with our research, development and commercialization activities;*
- *our ability to raise additional funds on commercially reasonable terms, or at all, in order to support our continued operations;*
- *the sufficiency of our cash resources to fund our operating expenses and capital investment requirements for any period;*
- *the expected timing of our clinical trials for our product candidates and the availability of data and results of those trials;*
- *our expectations regarding federal, state and foreign regulatory requirements;*
- *the potential therapeutic benefits and effectiveness of our products and product candidates;*
- *the size and characteristics of the markets that may be addressed by our products and product candidates;*
- *our intention to seek to establish, and the potential benefits to us from, any strategic collaborations or partnerships for the development or sale of our products and product candidates;*
- *our expectations as to future financial performance, expense levels and liquidity sources;*
- *the timing of commercializing our products and product candidates, if approved; and*
- *other factors discussed elsewhere in this report.*

The forward-looking statements made in this report relate only to events as of the date on which the statements are made. We have included important factors in the cautionary statements included in this report, particularly in the section entitled "Risk Factors" that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make. Except as required by law, we do not assume any intent to update any forward-looking statements after the date on which the statement is made, whether as a result of new information, future events or circumstances or otherwise.

RISK FACTORS SUMMARY

The risk factors summarized below could materially harm our business, operating results, and/or financial condition, impair our future prospects, and/or cause the price of our common stock to decline. These risks are discussed more fully in the section titled "Risk Factors". Material risks that may affect our business, financial condition, results of operations, and trading price of our common stock include the following:

- *Our research and development activities are focused on discovering and developing proprietary prodrugs, and we are taking an innovative approach to discovering and developing prodrugs, which may never lead to additional marketable prodrug products.*
- *If we are not able to obtain required regulatory approvals for our product candidates, or the approved labels are not sufficiently differentiated from other competing products, we will not be able to commercialize them and our ability to generate revenue or profits or to raise future capital could be limited.*
- *If commercialization of AZSTARYS or our product candidates is not successful, or we experience significant delays in commercialization, our business will be harmed.*
- *Clinical drug development involves a lengthy and expensive process, with an uncertain outcome. We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.*
- *We may need substantial additional funding to pursue our business objectives. If we are unable to raise capital when needed, we could be forced to delay, reduce or altogether cease our prodrug development programs or commercialization efforts or cease operations altogether.*
- *We have incurred significant recurring negative net operating losses since our inception. We expect to incur operating losses over the next several years and may never achieve or maintain profitability.*
- *If we are unable to obtain and maintain trade secret protection or patent protection for our technology, AZSTARYS or our product candidates, or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize technology and drugs similar or identical to ours, and our ability to successfully commercialize our technology, AZSTARYS and our product candidates, if approved, may be impaired.*
- *If we, subject to the approval of Commave Therapeutics, S.A., or Commave, themselves, attempt to rely on Section 505(b)(2) of the Federal Food, Drug and Cosmetic Act and the FDA does not conclude that our product candidates are sufficiently bioequivalent, or have comparable bioavailability, to approved drugs, or if the FDA does not allow us or Commave to pursue the 505(b)(2) NDA pathway as anticipated, the approval pathway for our product candidates will likely take significantly longer, cost significantly more and entail significantly greater complications and risks than anticipated, and the FDA may not ultimately approve our product candidates.*
- *The FDA may determine that any NDA we may submit under the 505(b)(2) regulatory pathway for any of our product candidates in the future is not sufficiently complete to permit a substantive review.*
- *We have entered into collaborations with Commave to develop, manufacture and commercialize AZSTARYS and KP484 worldwide and KVK-Tech, Inc., or KVK, to manufacture and commercialize APADAZ in the United States. In addition, we may seek collaborations with third parties for the development, manufacturing or commercialization of our other product candidates, or in other territories. If those collaborations are not successful, we may not be able to capitalize on the market potential of AZSTARYS, APADAZ, KP484 or other product candidates, if approved.*
- *The trading price of the shares of our common stock is likely to be volatile, and purchasers of our common stock could incur substantial losses.*

NOTE REGARDING COMPANY REFERENCE

Unless the context otherwise requires, we use the terms "KemPharm," "Company," "we," "us" and "our" in this Annual Report on Form 10-K to refer to KemPharm, Inc. We have proprietary rights to a number of trademarks used in this Annual Report on Form 10-K that are important to our business, including KemPharm, LAT and the KemPharm logo. All other trademarks, trade names and service marks appearing in this Annual Report on Form 10-K are the property of their respective owners. Solely for convenience, the trademarks and trade names in this Annual Report on Form 10-K are referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

NOTE REGARDING MARKET AND INDUSTRY DATA

This Annual Report on Form 10-K contains statistical data, estimates and forecasts that are based on independent industry publications or other publicly available information, as well as other information based on our internal sources. While we believe the industry and market data included in this Annual Report on Form 10-K is reliable and is based on reasonable assumptions, this data involves many assumptions and limitations, and you are cautioned not to give undue weight to these estimates. We have not independently verified the accuracy or completeness of the data contained in these industry publications and other publicly available information. The industry in which we operate is subject to a high degree of uncertainty and risk due to a variety of factors, including those described in the section titled "Risk Factors" and "Special Note Regarding Forward-Looking Statements" included in this Annual Report on Form 10-K.

PART I

ITEM 1. BUSINESS.

Overview

We are a specialty pharmaceutical company focused on the discovery and development of treatments for central nervous system, or CNS, and rare disease indications that allow us to target high-value areas with significant unmet needs. Our core competency is the discovery and development of proprietary prodrugs to treat serious medical conditions through our proprietary Ligand Activated Therapy, or LAT®, platform technology. We utilize our proprietary LAT platform technology to generate improved prodrug versions of drugs approved by the U.S. Food and Drug Administration, or FDA, as well as to generate prodrug versions of existing compounds that may have applications for new disease indications. Our prodrug product candidate pipeline is currently focused on the high need areas of idiopathic hypersomnia, or IH, and other CNS/rare diseases. Our approved product, AZSTARYS®, formerly referred to as KP415, a new once-daily treatment for attention deficit hyperactivity disorder, or ADHD, in patients, age six years and older, contains our prodrug, serdexmethylphenidate, or SDX. AZSTARYS is being commercialized in the United States by Corium, Inc., or Corium, an affiliate of Gurnet Point Capital, L.P., which was tasked by Commave to lead all commercialization activities for AZSTARYS under the KP415 License Agreement. Our lead clinical development product candidate, KP1077, is based on SDX, our prodrug of d-methlyphenidate, or d-MPH, and is in development for the treatment of IH and narcolepsy. Our prodrug product candidate for the treatment of stimulant use disorder, or SUD, is KP879.

Our strategic focus on CNS/rare disease indications guides our business development efforts to expand our pipeline with the goal of developing and potentially commercializing innovative therapies for patients living with CNS/rare neurological disorders. We intend to target assets that will allow us to leverage the expertise and infrastructure that we have successfully built at KemPharm in order to mitigate risk and enhance our probability of success. In addition, we are considering external opportunities within neurology and neurodegenerative diseases, psychiatric disorders, and other rare diseases, along with adjacent or related therapeutic categories. We are seeking assets that are undergoing Phase 2 clinical trials or Phase 3 clinical trials, subject to our specific evaluation criteria, that we can in-license or acquire. If we are successful, expanding our development pipeline could be accretive to our value proposition by potentially adding new clinical data catalysts and have the potential to create incremental long-term value for shareholders. In addition, we believe that a multi-channel development program with several product candidates addressing various CNS/rare disease indications will diversify risk and potentially create an impactful portfolio of commercial-stage products in the future.

In January 2022, we announced that we have selected KP1077 for the treatment of IH and narcolepsy as our next clinical development candidate. KP1077 utilizes SDX, our prodrug of d-MPH, as its active pharmaceutical ingredient. We expect to commence a Phase 2 clinical trial with KP1077 in the United States as early as the second half of 2022.

In May 2021, we announced that SDX, our proprietary prodrug of d-MPH and the primary active pharmaceutical ingredient, or API, in AZSTARYS, was classified as a Schedule IV controlled substance by the U.S. Drug Enforcement Administration, or DEA. AZSTARYS is classified as a Schedule II controlled substance as it includes a 70:30 mixture of SDX (Schedule IV) and d-MPH (Schedule II), respectively.

In March 2021, we announced that the FDA approved the New Drug Application, or NDA, for AZSTARYS, a once-daily product for the treatment of ADHD in patients ranging from six years and older. Commave Therapeutics SA (formerly known as Boston Pharmaceuticals S.A.), or Commave, an affiliate of Gurnet Point Capital, L.P., has licensed the commercial rights for AZSTARYS as provided by the KP415 License Agreement (as defined below), and has tasked Corium with leading all commercialization activities for AZSTARYS in the United States. Corium commercially launched AZSTARYS in the United States during the third quarter of 2021. In December 2021, Commave sublicensed commercialization rights for AZSTARYS in greater China to Shanghai Ark Biopharmaceutical Ltd.

In July 2020, we entered into a consultation services arrangement, or the Corium Consulting Agreement, under which Corium and Commave, respectively engaged us to guide the product development and regulatory activities for certain current and potential future products in Corium’s portfolio, as well as to continue supporting the commercial launch of AZSTARYS. The initial term of the Corium Consulting Agreement continues through March 2022.

In September 2019, we entered into our collaboration and license agreement, or the KP415 License Agreement, with Commave, for the development, manufacture and commercialization of our product candidates containing SDX and d-MPH, including AZSTARYS and KP484, worldwide. In addition, the KP415 License Agreement provides Commave a right of first negotiation upon the completion of a Phase 1 proof-of-concept study for KP879, KP922 or any other product candidate developed by us containing SDX and intended to treat ADHD or any other central nervous system disorder, or the Additional Product Candidates. In April 2021, we entered into Amendment No. 1 to the KP415 License Agreement, or the KP415 Amendment, pursuant to which we agreed to modify the compensation terms of the KP415 License Agreement and increase the total remaining future regulatory and sales milestone payments related to AZSTARYS. Further, Commave agreed to pay us quarterly, tiered royalty payments. Pursuant to the KP415 Amendment, we also agreed to modify Commave's right of first refusal such that our product candidate, KP922, is no longer subject to Commave's right of first refusal to acquire, license or commercialize any Additional Product Candidate. Commave's right of first refusal shall only apply to any Additional Product Candidate which contains SDX, with such right of first refusal expiring upon the acceptance of an NDA for such Additional Product Candidate containing SDX.

In October 2018, we entered into our collaboration and license agreement, or the APADAZ License Agreement, with KVK. Under the APADAZ License Agreement, we granted an exclusive license to KVK to conduct regulatory activities for, manufacture and commercialize APADAZ®, an FDA approved immediate-release, or IR, combination product of benzhydrocodone, our prodrug of hydrocodone, and acetaminophen, or APAP, for the short-term (no more than 14 days) management of acute pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate, in the United States. KVK made APADAZ first available for sale nationally beginning in November 2019 and continues to pursue a limited launch strategy designed to introduce APADAZ as a responsible alternative to other immediate release hydrocodone products.

We employ our proprietary LAT platform technology to discover and develop prodrugs that are new molecules that can improve one or more of the attributes of approved drugs, such as enhanced bioavailability, extended duration of action, increased safety and reduced susceptibility to abuse. A prodrug is a precursor chemical compound of a drug that is inactive or less than fully active, which is then converted in the body to the active form of the drug through a normal metabolic process. Where possible, we seek, to develop prodrugs that will be eligible for approval under Section 505(b)(2) of the Federal Food, Drug and Cosmetic Act, or the FFDCA, otherwise known as a 505(b)(2) NDA, which allows us to submit an NDA that relies on the FDA's previous findings of safety and effectiveness for one or more approved products, if we demonstrate such reliance is scientifically appropriate.

We intend to advance our pipeline of prodrug product candidates for the treatment of IH and other CNS/rare diseases, and we reported top-line data from a Phase 1 proof-of-concept study for KP879 in the fourth quarter of 2021 and final data for the Phase 1 proof-of-concept study for KP879 in the first quarter of 2022. We plan to employ our LAT platform technology and development expertise to develop additional product candidates that address significant unmet medical needs in therapeutic indications which have few existing product options. We believe our product candidates may be eligible for composition-of-matter patent protection and we intend to use the 505(b)(2) NDA pathway when available, which we believe has the potential to reduce drug development time and expense.

Our Proprietary LAT Platform Technology

We employ our proprietary LAT platform technology to create prodrugs that are new molecules by chemically attaching one or more molecules, referred to as ligands, to an FDA-approved parent drug. We typically use ligands that have been demonstrated to be safe in toxicological studies or that the FDA classifies as Generally Recognized as Safe, or GRAS, for use in foods. When the prodrug is administered, human metabolic processes, such as those in the gastrointestinal, or GI, tract, separate the ligand from the prodrug and release the parent drug, which is then designed to exert its therapeutic effect. We select ligands that, when combined with the parent drug, are designed to create prodrugs that have improved drug attributes while maintaining efficacy potentially equivalent to the parent drug.

We believe that our proprietary LAT platform technology offers the following potential benefits:

- ***Improved drug properties.*** We seek to discover and develop prodrugs that are new molecules with potentially improved attributes over FDA-approved drugs, such as enhanced bioavailability, extended duration of action, increased safety and reduced susceptibility to abuse.

- ***Composition-of-matter patent protection.*** Our prodrugs are new molecules and thus may be eligible for patent protection as novel compositions of matter, provided that all other applicable requirements are met. We seek patent protection not only for our product candidates, but also for related compounds with the intention of creating potential heightened barriers to market entry.

- ***Eligibility for 505(b)(2) NDA pathway.*** Our proprietary LAT platform technology allows us to discover and develop prodrugs that may be eligible to use the 505(b)(2) NDA pathway. Under that regulatory pathway, if we are able to provide an adequate bridge between our product candidates and appropriate FDA-approved drugs, we will then be able to reference the FDA's previous findings of safety and effectiveness of the approved drugs in our 505(b)(2) NDA submissions. This approach may allow us to avoid some of the significant time and expense of conducting large clinical trials and potentially eliminate the need for some preclinical activities.

The Unmet Need for Addressing Early Morning Behavioral Deficits and Maintaining Consistent, Sustained Efficacy in Daily ADHD Treatment

The ADHD market is relatively well-served by a number of methylphenidate and amphetamine stimulant products. However, we believe there is a significant need for longer duration products. While a few of the currently-marketed methylphenidate products are labeled as providing some level symptom control for up to 12 hours post-dose, there is increasing attention to addressing late afternoon/early evening behavioral deficits, while also providing symptom control sooner following dosing.

A study published in a peer-reviewed journal characterized the frequency and severity of ADHD symptoms throughout the day in children and adolescents treated with stable doses of stimulant medications. Results of that particular study indicated that the time from awakening to arriving at school can comprise up to 20% of waking hours per day (2-3 hours), and therefore such symptoms can cause significant distress for both children and caregivers. As a result, we believe there is a need to develop a methylphenidate product that provides early-morning control of symptoms.

In addition to early onset, patients require sustained, consistent efficacy throughout the day and into the early evening hours. While currently marketed methylphenidate products offer efficacy for up to 12 hours, this duration may not be sufficient for all patients. Particularly adolescents and adults may often require longer effects as they have longer waking hours compared to younger patients. It has been reported in a peer-reviewed journal that these patients are typically using dose-augmentation strategies by taking additional doses of stimulant later in the day. We believe a single dose therapy that provides effective symptom control without requiring additional doses may have several benefits including, potentially, improved dosage compliance by regularly and consistently taking medication as indicated, reduced social embarrassment by avoiding the need to take medication during working hours, and overall improvement in quality of life through more consistent therapy. Based on this evidence, we believe there is a need to develop a methylphenidate product that can deliver long duration of efficacy. There may also be a need to develop a long-duration stimulant with and without very early onset depending on individual patient preference and requirements.

Our Product Candidates and Approved Products

We have employed our proprietary LAT platform technology to create a portfolio of approved products that we believe will offer, and product candidates that we believe have the potential to offer, significant improvements over currently available FDA-approved drugs.

A selection of our product candidates and approved products are summarized in the table below:

Selected KemPharm Partnered and Other Development Assets

Parent Drug (Effect Profile) (Indication)	Product Candidate / Product (Status)	Development Status	Next Milestone(s)
Methylphenidate (ER) (IH)	KP1077*	Clinical - Phase 2	Initiation of Pivotal Phase 2 Trial - as early as H2 2022
Methylphenidate (ER) (Narcolepsy Types I and II)	KP1077*	Clinical - Phase 2	Initiation of Pivotal Phase 2 Study - as early as H2 2022
Methylphenidate (ER) (SUD)	KP879	Clinical - Phase 1	Published Final Phase 1 Data - Q1 2022
Methylphenidate (ER) (ADHD)	AZSTARYS (Partnered)	FDA Approved	Tracking Payor Contracts and TRx's
Hydrocodone / APAP (IR) (Pain)	APADAZ (Partnered)	FDA Approved	Tracking Payor Contracts and TRx's

* This product candidate is subject to a right of first negotiation upon completion of a Phase 1 proof-of-concept study in favor of Commave under the terms of the KP415 License Agreement, but is not currently licensed to Commave, thereunder.

The above noted anticipated milestones are based on information currently available to us and our current plans and expectations are subject to a number of risks and uncertainties, including those described in Part I, Item 1A. “Risk Factors” in this Annual Report on Form 10-K.

AZSTARYS and KP484

Overview

The prodrug in both AZSTARYS and KP484 is serdexmethylphenidate, or SDX, and both are designed for the treatment of ADHD. The ADHD market is largely served by the stimulant products methylphenidate and amphetamine. Both AZSTARYS and KP484 are designed to be extended-duration methylphenidate products.

In March 2021, we announced that the FDA approved the NDA for AZSTARYS, a once-daily product for the treatment of ADHD in patients ranging from six years and older. Corium commercially launched AZSTARYS in the United States during the third quarter of 2021. Subject to Commave's approval, we intend to seek approval of KP484 under the 505(b)(2) NDA pathway, which may allow us to rely on the FDA's previous findings of safety and effectiveness for one or more approved products. The timing for initiating additional pharmacokinetic and pivotal efficacy trials for KP484 is subject to Commave's direction as provided under the KP415 License Agreement.

In September 2019, we entered into the KP415 License Agreement with Commave. Under the KP415 License Agreement, we granted to Commave an exclusive, worldwide license, under certain patents and know-how controlled by us that relate to SDX, d-MPH, amphetamine and any prodrugs of amphetamine or methylphenidate, and derivatives thereof, or Compounds, to develop, manufacture and commercialize AZSTARYS and KP484. In addition, we granted to Commave an exclusive option to expand the foregoing license under the KP415 License Agreement to develop, manufacture and commercialize KP879, KP922, and any other product candidate developed by us that (i) contains a Compound or (ii) is designed to treat ADHD or any other central nervous system disorder, or for the products subject to the option, the Additional Product Candidates and, collectively with AZSTARYS and KP484, the Licensed Product Candidates. We are required to keep Commave reasonably informed as to our development of each Additional Product Candidate through completion of Phase 1 proof-of-concept study of such Additional Product Candidate and deliver to Commave a report and data package related thereto. We are required to negotiate with Commave in good faith regarding the economic terms for each Additional Product Candidate, and Commave has the right to exercise its option with respect to such Additional Product Candidate within a specified time after receipt of the applicable report and data package. We further granted to Commave a right of first refusal, or Product ROFR, to acquire, license or commercialize any Additional Product Candidate for which Commave does not exercise the foregoing option and for which Commave agrees to the same economic terms as offered by a third party for such Additional Product Candidate. To that end, we are obligated to notify Commave of the existence of any bona fide offer from a third party, including material terms thereof, to acquire, license, and/or commercialize any such Additional Product Candidate. The Product ROFR may be exercised only once for each such Additional Product Candidate and shall expire upon acceptance of the NDA for each such Additional Product Candidate. During the term of the KP415 License Agreement, we may not develop or commercialize any Competing Product (as defined in the KP415 License Agreement).

Pursuant to the KP415 License Agreement, Commave paid us an upfront payment of $10.0 million and agreed to pay up to $63.0 in milestone payments upon the occurrence of specified regulatory milestones related to the AZSTARYS, including FDA approval and specified conditions with respect to the final approval label, and KP484. In addition, Commave agreed to make additional payments upon the achievement of specified U.S. sales milestones of up to $420.0 million in the aggregate. Further, Commave will pay us quarterly, tiered royalty payments ranging from a percentage in the high single digits to the mid-twenties of Net Sales (as defined in the KP415 License Agreement) in the United States and a percentage in the low to mid-single digits of Net Sales in each country outside the United States, in each case subject to specified reductions under certain conditions. Commave is obligated to make such royalty payments on a product-by-product basis until expiration of the royalty term for the applicable product.

In April 2021, we entered into the KP415 Amendment. Pursuant to the KP415 Amendment, we and Commave agreed to modify the compensation terms of the KP415 License Agreement. Pursuant to the KP415 Amendment, Commave paid us $10.0 million in connection with the entry into the KP415 Amendment as a result of the regulatory approval of AZSTARYS in the United States which occurred on March 2, 2021. Commave also paid us $10.0 million following the receipt of the scheduling determination of the compound SDX by the DEA, which occurred on May 7, 2021. In addition, the KP415 Amendment increased the total remaining future regulatory and sales milestone payments related to AZSTARYS to up to an aggregate of $590.0 million in payments upon the occurrence of specified regulatory milestones related to AZSTARYS and upon the achievement of specified U.S. net sales milestones. Further, under the KP415 Amendment, Commave agreed to pay us quarterly, tiered royalty payments that are calculated from a base royalty rate percentage in the high single digits to the mid-twenties of net sales in the United States, subject to adjustment based on annual net sales, and a percentage in the low to mid-single digits of net sales in each country outside the United States, in each case subject to specified reductions under certain conditions, including with respect to the final approval label, as described in the KP415 License Agreement. Commave is obligated to make such royalty payments on a product-by-product basis until expiration of the Royalty Term for the applicable product.

Pursuant to the KP415 Amendment, we and Commave also agreed to modify Commave's Product ROFR such that our product candidate KP922 is no longer subject to the Product ROFR. Further, pursuant to the KP415 Amendment, Commave's Product ROFR will only apply to any Additional Product Candidate which contains SDX, and not to other Compounds, and such Product ROFR will expire upon the acceptance of an NDA for such Additional Product Candidate containing SDX.

In addition, if we decide to sell, assign, contribute, convey, grant or otherwise transfer to any third party our rights under the KP415 License Agreement to receive payments, we are obligated to give Commave a right of first refusal, subject to specified exceptions, to acquire such payment rights on the same economic terms as that offered by the applicable third party.

Commave agreed to be responsible for and reimburse us for all of development, commercialization and regulatory expenses for the Licensed Product Candidates, subject to certain limitations as set forth in the KP415 License Agreement, including consultation fees to be paid to us for services provided to Commave in performing such activities.

Unless terminated earlier, with respect to AZSTARYS and KP484, the KP415 License Agreement will continue on a product-by-product, country-by-country basis and expire upon the expiration of the royalty term for each of AZSTARYS and KP484 in such country, and thereafter the license grant with respect thereto will become fully paid, irrevocable, and perpetual. Unless terminated earlier, with respect to all Additional Product Candidates, the KP415 License Agreement will continue perpetually and be fully paid. Commave may terminate the KP415 License Agreement in whole or on a product-by-product or country-by-country basis at its convenience upon prior written notice. We may terminate the KP415 License Agreement in its entirety if Commave or any of its related parties challenges the validity, enforceability, or scope of any licensed patent and such challenge is not required under a court order or subpoena and is not a defense against a claim, action or proceeding asserted by us. Either party may terminate the KP415 License Agreement (i) upon a material breach by the other party, subject to a cure period, or (ii) if the other party enters bankruptcy or insolvency. Upon certain material breach by us, subject to our right to cure, Commave may choose not to terminate the KP415 License Agreement and instead reduce the milestone and royalty payments owed to us. Upon termination but not expiration, all licenses and other rights granted by us to Commave pursuant to the KP415 License Agreement would revert to us.

Under our March 2012 termination agreement with Aquestive, Aquestive has the right to receive a royalty amount equal to 10% of any value generated by AZSTARYS, KP484 or KP879, and any product candidates which contain SDX, including royalty payments on any license of AZSTARYS, KP484 or KP879, the sale of AZSTARYS, KP484 or KP879 to a third party, the commercialization of AZSTARYS, KP484 or KP879 and the portion of any consideration that is attributable to the value of AZSTARYS, KP484 or KP879 and paid to us or our stockholders in a change of control transaction. In connection with the KP415 License Agreement, we paid Aquestive a royalty equal to 10% of the upfront license payment we received in 2019 and the regulatory milestone and royalty payments we received in 2020 and 2021 from AZSTARYS.

Market Opportunity

We believe the ADHD market would be receptive to new branded drugs that have improved properties when compared to current treatments. We believe a new product in the form of a prodrug that has differentiated features may provide a new treatment option in this large market segment. While methylphenidate is available as a generic product, the branded formulations, including, among others, CONCERTA, FOCALIN XR, JORNAY PM, QUELBREE, QUILLICHEW XR and COTEMPLA XR-ODT rely on formulation alone in attempting to provide differentiation from generics.

Key Features of AZSTARYS

We believe AZSTARYS has valuable product features and may provide significant benefits to patients, physicians, and society:

- ***Once-daily dosing.***
- ***Available to treat patients six years and older.***
- ***Amenable to patient-friendly formulations.*** Patients can take AZSTARYS with or without food and can swallow capsules whole or open and sprinkle onto food or add to water.
- ***Composition-of-matter patent protection.*** We have a U.S. composition-of-matter patent that will expire, after utilizing all appropriate patent term adjustments but excluding possible term extensions, in 2037 that generally covers at least one component of AZSTARYS. Our patent strategy is focused primarily on key geographic markets, and we have composition-of-matter patents in multiple countries, including in Canada, China, Europe, Malaysia, Mexico, Indonesia, Israel, Japan, New Zealand, Philippines, Russia, Singapore, South Africa, South Korea and Vietnam, and additional patent filings pending in the United States and foreign jurisdictions.
- ***No generic equivalent product.*** AZSTARYS contains a prodrug that was given a new chemical name, serdexmethylphenidate, by the U.S. Adopted Names Council, or USAN, which means that there may be no generic equivalent product for AZSTARYS in most states, making drug-equivalent substitution potentially difficult at the pharmacy.

KP484

Based on our preclinical and clinical data, we believe KP484, if approved by the FDA, may have valuable product features and may provide significant benefits to patients, physicians, and society:

- ***Super-extended release.*** We believe that KP484 may provide sustained, consistent release through the day and into the evening hours.
- ***Once-daily dosing.*** We believe this extended-duration attribute of KP484 may allow for convenient, once-daily dosing.
- ***Amenable to patient-friendly formulations.*** Our preclinical and clinical data shows that KP484, if approved, could potentially be used in a variety of patient-friendly dosage forms such as oral thin film and orally dissolving tablets as a means of increasing patient convenience and dosage compliance by regularly and consistently taking the medications as indicated.
- ***Composition-of-matter patent protection.*** KP484 is generally protected by a U.S. composition-of-matter patent that will expire, after utilizing all appropriate patent term adjustments but excluding possible term extensions, in 2032. Our patent strategy is focused primarily on key geographic markets, and we have composition-of-matter patents generally protecting the major component of KP484 in New Zealand, South Africa and select other countries.
- ***No generic equivalent product.*** KP484 contains a prodrug that was given a new chemical name, serdexmethylphenidate, by the USAN, which means that there may be no generic equivalent product for KP484 in most states, making drug-equivalent substitution potentially difficult at the pharmacy.

KP1077

KP1077 is based on SDX and is our lead prodrug product candidate in development for the treatment of IH, an underserved indication. Currently there are no approved drugs in the United States for IH. We expect to submit an Investigational New Drug application, or IND, to the FDA for KP1077 as early as the second quarter of 2022. IH is a rare neurological sleep disorder affecting approximately 37,000 patients in the United States. The cardinal feature of IH is excessive daytime sleepiness, or EDS, characterized by daytime lapses into sleep, or an irrepressible need to sleep that persists even with adequate or prolonged nighttime sleep. Additionally, those with IH have extreme difficulty waking, otherwise known as "sleep inertia," severe brain fog, and may fall asleep unintentionally or at inappropriate times, also known as narcolepsy. These debilitating symptoms often further lead to reported memory problems, difficulty maintaining focus, and depression.

There is currently only one approved product for the treatment of IH, XYWAV, developed by Jazz Pharmaceuticals. A second product, WAKIX, developed by Harmony Biosciences and originally approved for the treatment of EDS or cataplexy in adult patients with narcolepsy, is planned to be studied in a Phase 3 trial with IH patients. Prescribers also utilize narcolepsy medications and various stimulant products "off-label" to treat IH symptoms, with methylphenidate being one of the most commonly used stimulants for treating IH. While each of these medications can help to address certain IH symptoms, there are also potential shortcomings, including dosing inconvenience, serious adverse events, such as elevated blood pressure and heart rate, and significant drug-to-drug interactions, or DDIs, including with medications used to manage contraception and depression. In addition, patients have indicated that the effectiveness of their current medication was poor.

Based on our preclinical and clinical data, we believe KP1077, if approved by the FDA, may have valuable product features and may provide significant benefits to patients and physicians:

- ***Dosing flexibility.*** Either one or two doses daily, which is designed to address the two primary issues associated with IH: (i) nighttime dose would address sleep inertia, and (ii) morning dose would address daytime brain fog.

- ***No drug-to-drug interactions.*** Our data indicate that there is no drug-to-drug interaction potential, especially with hormonal contraceptives and antidepressants.

- ***Reduced abuse potential as a Schedule IV controlled substance.*** All other methylphenidate-based products have been designated as Schedule II controlled substances, which indicates stricter control over the prescribing and use of such products. KP1077 is based on SDX, which has been designated a Schedule IV controlled substance.

- ***No generic equivalent product.*** KP1077 contains SDX, our proprietary prodrug of d-methylphenidate that was given a new chemical name, serdexmethylphenidate, by the USAN, which means that there may be no generic equivalent product for KP1077 in most states, making drug-equivalent substitution potentially difficult at the pharmacy.

- ***Composition-of-matter patent protection.*** KP1077 is generally protected by a U.S. composition-of-matter patent that will expire, after utilizing all appropriate patent term adjustments but excluding possible term extensions, in 2037.

- ***Orphan drug designation potential.*** Because there are limited treatments available for the extremely small IH patient population, KP1077 may be eligible to receive the orphan drug designation by the FDA, as well as fast-track and breakthrough therapy designation eligibility, which may provide various regulatory benefits for the development program.

KP879

KP879 is based on SDX and is our product candidate in development for the treatment of SUD including, for example, abuse or misuse of cocaine, methamphetamine and prescription stimulants. Currently there are no approved drugs in the United States for SUD. We submitted an IND to the FDA for KP879 in December 2020. In January 2021, the FDA completed its review of the KP879 IND, concluding that we may proceed with its planned clinical investigation of the product candidate. We initiated the clinical program in October 2021, reported top-line data from a Phase 1 proof-of-concept study for KP879 in the fourth quarter of 2021 and final data from the Phase 1 proof-of-concept study for KP879 in the first quarter of 2022.

APADAZ

Overview

In February 2018, we announced that the FDA approved APADAZ for the short-term (no more than 14 days) management of acute pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate. APADAZ is an IR combination of our prodrug, benzhydrocodone, and acetaminophen, or APAP. Benzhydrocodone was developed with our proprietary LAT platform technology.

In October 2018, we entered into the APADAZ License Agreement with KVK pursuant to which we have granted an exclusive license to KVK to conduct regulatory activities for the manufacture and commercialization of APADAZ in the United States. We have retained the right to license the international commercial rights to APADAZ to one or more collaborators outside of the U.S. We will be solely responsible for all development activities except for regulatory activities relating to APADAZ in the United States.

Pursuant to the APADAZ License Agreement, KVK agreed to pay us certain payments and cost reimbursements of an estimated total of $3.4 million, which includes a payment of $2.0 million within 10 days of the achievement of a specified milestone related to the initial formulary adoption of APADAZ, or the Initial Adoption Milestone. In addition, KVK has agreed to make additional payments to us upon the achievement of specified sales milestones of up to $53.0 million in the aggregate. Further, we and KVK will share the quarterly net profits of APADAZ by KVK in the United States at specified tiered percentages, ranging from us receiving 30% to 50% of net profits, based on the amount of net sales on a rolling four quarter basis. We are responsible for a portion of commercialization and regulatory expenses for APADAZ until the Initial Adoption Milestone is achieved, after which KVK will be responsible for all expenses incurred in connection with commercialization and maintaining regulatory approval in the United States.

The APADAZ License Agreement also established a joint steering committee, which monitors progress of the commercialization of APADAZ.

In November 2019, APADAZ and its authorized generic became nationally available. To date, KVK has utilized targeted non-traditional efforts to build product awareness for APADAZ as a responsible alternative to currently available hydrocodone/acetaminophen products and there has been limited adoption of the product by prescribers.

Our Intellectual Property

Our intellectual property strategy includes seeking composition-of-matter patents, among other patents, for our prodrugs and product candidates and conjugates of our prodrugs while also protecting, where appropriate as trade secrets, our proprietary LAT platform technology, the process by which we identify, screen, evaluate and select ligands to be conjugated with parent drugs to create our prodrugs. Our current prodrugs all consist of an approved parent drug and one or more ligands that we have selected using our proprietary LAT platform technology. The parent drug and ligand or ligands together may potentially constitute a new molecule and thus may be eligible for composition-of-matter patent protection, among other patent protections, in the United States and abroad.

As of December 31, 2021, we have been granted and maintain 53 active patents within the United States, and an additional 88 active foreign patents covering our selected prodrugs and product candidates. The terms of the 53 issued U.S. patents extend to various dates ranging, for example, between 2030 and 2039. The term of our overall domestic and foreign patent portfolio related to our selected prodrugs and product candidates, including patent term adjustments but excluding possible patent term extensions, extend to various dates ranging, for example, between 2030 and 2039, if pending patent applications in each of our patent families issue as patents. As of December 31, 2021, we had 12 pending patent applications under active prosecution in the United States, and an additional 22 pending foreign patent applications potentially covering our selected prodrugs and product candidates. Our issued and granted patents provide protection in jurisdictions that include the United States, Australia, Canada, Chile, China, European Countries, Hong Kong, India, Indonesia, Israel, Japan, Kazakhstan, Malaysia, Mexico, New Zealand, Philippines, Romania, Russia, Singapore, South Africa, South Korea, and Vietnam.

We have received composition-of-matter patents and also additionally filed composition-of-matter and method of treatment patent applications related to the AZSTARYS and KP484 families in the United States and in Argentina, Australia, Brazil, Canada, Chile, China, Egypt, Hong Kong, European Countries, India, Israel, Indonesia, Japan, South Korea, Kazakhstan, Mexico, Malaysia, New Zealand, Philippines, Russia, Singapore, South Africa, Thailand, Ukraine, and Vietnam. We anticipate filing additional patent applications for our prodrugs and product candidates.

Since 2013, the United States Patent and Trademark Office, or the USPTO, has issued 14 composition-of-matter or method of treatment patents covering benzhydrocodone, which will expire, after utilizing all appropriate patent term adjustments but excluding possible patent term extensions, no earlier than 2030. Further, there are granted or recently allowed compositions-of-matter patents covering benzhydrocodone in Australia, Canada, Chile, China, Israel, Mexico, South Africa, and South Korea. Patent applications covering benzhydrocodone were pending as of December 31, 2021, in Thailand and Vietnam.

We also depend upon the skills, knowledge and experience of our scientific and technical personnel, as well as that of our advisors, consultants and other contractors. To help protect our LAT platform technology, as well as any proprietary know-how and show-how beyond that which is patentable, we rely on trade secret protection and confidentiality agreements to protect our interests. To this end, we generally require our employees, consultants and advisors to enter into confidentiality agreements prohibiting the disclosure of confidential information and, in some cases, requiring disclosure and assignment to us of the ideas, developments, discoveries, inventions and improvements important to our business.

Commercialization

In March 2021, we announced that the FDA approved the NDA for AZSTARYS, a once-daily product for the treatment of ADHD in patients ranging from six years and older. Corium is leading the commercialization of AZSTARYS per the KP415 License Agreement. Corium commercially launched AZSTARYS in the United States during the third quarter of 2021.

In February 2018, we announced that the FDA approved APADAZ for the short-term (no more than 14 days) management of acute pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate. In October 2018, we entered into the APADAZ License Agreement with KVK pursuant to which we have granted an exclusive license to KVK to conduct regulatory activities for, manufacture and commercialize APADAZ in the United States. In November 2019, APADAZ and its authorized generic (AG-APADAZ) became nationally available. In December 2020, KVK, in collaboration with Sure Med Compliance, initiated a regional launch of the Perspectives in Care program to provide education to physicians, pharmacies and patients regarding responsible opioid therapy and launched a pilot program for APADAZ in Alabama.

With the exception of AZSTARYS and APADAZ, commercialization activities for our product candidates in active development have not yet begun. Because many of our product candidates may have large potential market opportunities, and may require significant marketing resources, we may conclude that the most appropriate approach to their commercialization, if they receive regulatory approval, will involve forming a commercial collaboration or strategic relationship similar to those we have entered into with Commave and KVK, or consummating some type of strategic transaction, with a larger pharmaceutical or other marketing organization. Alternatively, we may conclude that building our own focused sales and marketing organization will be most appropriate, perhaps as part of a co-promotional arrangement, or some other form of collaboration. As we get closer to potential approval of our product candidates which are not currently subject to the KP415 License Agreement or the APADAZ License Agreement, we will work to identify and implement the commercialization strategies that we conclude are the most desirable with regard to the specific product candidates.

Competition

Our industry is characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. We will face competition and potential competition from a number of sources, including pharmaceutical and biotechnology companies, specialty pharmaceutical companies, generic drug companies, drug delivery companies and academic and research institutions. Our competitors may develop or market drugs that are more effective, more convenient, more widely used and less costly or have a better safety profile than our products or product candidates and these competitors may also have significantly more resources than us and be more successful than us in manufacturing and marketing their products.

AZSTARYS and, if approved, we intend for KP484 to compete against currently marketed, branded and generic methylphenidate products for the treatment of ADHD. Some of these currently marketed products include Janssen’s CONCERTA, Supernus' QUELBREE, Tris Pharma’s QUILLIVANT XR and QUILLICHEW ER, Novartis’ RITALIN, FOCALIN and FOCALIN XR, UCB’s METADATE CD, Noven’s DAYTRANA, Neos Therapeutics’ CONTEMPLA XR-ODT, Ironshore Pharmaceuticals, Inc.’s JORNAY PM and Adlon Therapeutics’ ADHANSIA XR, in addition to multiple other branded and generic methylphenidate products. In addition, AZSTARYS and, if approved, KP484 will face potential competition from any other methylphenidate products for the treatment of ADHD that are currently in or which may enter into clinical development.

APADAZ competes against currently marketed, branded and generic hydrocodone/APAP products for short-term (no more than 14 days) management of acute pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate. In addition, APADAZ may face potential competition from any other hydrocodone/APAP products for short-term (no more than 14 days) management of acute pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate that are currently in or which may enter into clinical development.

If approved, we intend for KP1077 to compete against Jazz Pharmaceuticals’ XYWAV, and potentially with other products that are currently in development for the treatment of IH, including Harmony Biosciences’ WAKIX. KP1077 could face potential competition from any products for the treatment of IH that are currently in or which may enter into clinical development.

Currently, there are no approved drugs in the United States for the treatment of SUD. If approved, KP879 will face potential competition from any products for the treatment of SUD that are currently in, or which may enter into, clinical development.

Manufacturing

Our manufacturing strategy is to rely on contract manufacturers to produce our product candidates for clinical trials and, if approved, drug product for commercial sale. We currently have no manufacturing facilities and limited personnel with manufacturing experience. We have contracted with a third-party manufacturer to supply SDX, which is the primary API for KP1077, KP879 and KP484, to be used in our non-clinical, clinical and formulation development programs necessary to support an NDA submission. We expect to contract with third-party manufacturers for the manufacture of all API supply needs outside the United States if and when we receive approval from regulatory authorities outside the United States.

Our current and any future third-party manufacturers, their facilities and all lots of drug substance and drug products used in our clinical trials are required to be in compliance with current good manufacturing practices, or cGMPs. The cGMP regulations include requirements relating to organization of personnel, buildings and facilities, equipment, control of components and drug product containers and closures, production and process controls, packaging and labeling controls, holding and distribution, laboratory controls, records and reports, and returned or salvaged products. The manufacturing facilities for our products must meet cGMP requirements and FDA satisfaction before any product is approved and we can manufacture commercial products. Our current and any future third-party manufacturers are also subject to periodic inspections of facilities by the FDA and other authorities, including procedures and operations used in the testing and manufacture of our products to assess our compliance with applicable regulations.

Failure to comply with statutory and regulatory requirements subjects a manufacturer to possible legal or regulatory action, including refusal to approve pending applications, license suspension or revocation, withdrawal of an approval, imposition of a clinical hold or termination of clinical trials, warning letters, untitled letters, cyber letters, modification of promotional materials or labeling, product recalls, product seizures or detentions, refusal to allow imports or exports, total or partial suspension of production or distribution, debarment, injunctions, fines, consent decrees, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreements to resolve allegations of non-compliance with these laws, refusals of government contracts and new orders under existing contracts, exclusion from participation in federal and state healthcare programs, restitution, disgorgement or civil or criminal penalties, including fines and individual imprisonments.

Third-Party Payor Coverage and Reimbursement

Sales of pharmaceutical products depend in significant part on the availability of coverage and adequate reimbursement by third-party payors, such as state and federal governmental authorities, including those that administer the Medicare and Medicaid programs, and private managed care organizations and health insurers. Decisions regarding the extent of coverage and amount of reimbursement to be provided for each of our product and product candidates is and will be made on a plan-by-plan basis. One payor's determination to provide coverage for a product does not assure that other payors will also provide coverage, and adequate reimbursement, for the product. Each third-party payor determines whether or not it will provide coverage for a drug, what amount it will pay providers for the drug, and on what tier of its formulary the drug will be placed. These decisions are influenced by the existence of multiple drug products within a therapeutic class and the net cost to the plan, including the amount of the prescription price, if any, rebated by the drug's manufacturer. Typically, generic versions of drugs are placed in a preferred tier. The position of a drug on the formulary generally determines the co-payment that a patient will need to make to obtain the drug and can strongly influence the adoption of a drug by patients and physicians. Patients who are prescribed treatments for their conditions and providers performing the prescribed services generally rely on third-party payors to reimburse all or part of the associated healthcare costs. Patients are unlikely to use our products unless coverage is provided, and reimbursement is adequate to cover a significant portion of the cost of our products. Additionally, a third-party payor's decision to provide coverage for a drug does not imply that an adequate reimbursement rate will be approved. Also, third-party payors are developing increasingly sophisticated methods of controlling healthcare costs. As a result, coverage, reimbursement and placement determinations are complex and are often the subject of extensive negotiations between the payor and the owner of the drug.

Unless we enter into a strategic collaboration under which our collaborator assumes responsibility for seeking coverage and reimbursement for a given product, we will be responsible for negotiating coverage, reimbursement and placement decisions for our product candidates, if approved. Coverage, reimbursement and placement decisions for a new product are based on many factors including the coverage, reimbursement and placement of already marketed branded drugs for the same or similar indications, the safety and efficacy of the new product, availability of generics for similar indications, the clinical need for the new product and the cost-effectiveness of the product. Increasingly, both purchasers and payors are also conducting comparative clinical and cost effectiveness analyses involving application of metrics, including data on patient outcomes, provided by manufacturers.

Within the Medicare program, as self-administered drugs, our product and product candidates would be reimbursed under the expanded prescription drug benefit known as Medicare Part D. This program is a voluntary Medicare benefit administered by private plans that operate under contracts with the federal government. These plans develop formularies that determine which products are covered and what co-pay will apply to covered drugs. The plans have considerable discretion in establishing formularies and tiered co-pay structures, negotiating rebates with manufacturers and placing prior authorization and other restrictions on the utilization of specific products, subject to review by the Centers for Medicare & Medicaid Services, or CMS, for discriminatory practices. These Part D plans negotiate discounts with drug manufacturers, which are passed on, in whole or in part, to each of the plan's enrollees through reduced premiums. Historically, Part D beneficiaries have been exposed to significant out-of-pocket costs after they surpass an annual coverage limit and until they reach a catastrophic coverage threshold. However, changes made by recent legislation will reduce this patient coverage gap, known as the "donut hole", by transitioning patient responsibility in that coverage range from 100% in 2010 to only 25% currently. To help achieve this reduction, pharmaceutical manufacturers are required to provide quarterly discounts of 70%, which commenced January 1, 2019. In 2020, drug manufacturers became be responsible for a larger share of total drug costs due to an increase to the catastrophic threshold. Such increase will also result in a higher out-of-pocket threshold paid by Part D beneficiaries.

If a drug product is available for reimbursement by Medicare or Medicaid, its manufacturer must comply with various health regulatory requirements and price reporting metrics, which may include, as applicable, the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, the Medicaid rebate requirements of the Omnibus Budget Reconciliation Act of 1990, or the OBRA, and the Veterans Health Care Act of 1992, or the VHCA, each as amended. Among other things, the OBRA requires drug manufacturers with certain drugs covered by Medicaid to pay rebates on prescription drugs to state Medicaid programs. States may also negotiate "supplemental" Medicaid rebates on drug products dispensed under Medicaid. Manufacturers participating in Medicaid are also generally required to participate in the Public Health Service 340B Drug Discount Program, which imposes a mandatory discount on purchases by certain customers. Manufacturers of innovator drugs, including 505(b)(2) drugs, that participate in the Medicaid program are also required to offer the drugs on the Federal Supply Schedule purchasing program of the General Services Administration for purchase by the Department of Veterans Affairs, the Department of Defense and other authorized users at a mandatory discount. Additional laws and requirements apply to these contracts. Participation in such federal programs may result in prices for our future products that will likely be lower than the prices we might otherwise obtain.

Third-party payors, including the U.S. government, continue to apply downward pressure on the reimbursement of pharmaceutical products. Also, the trend towards managed health care in the United States and the concurrent growth of organizations such as health maintenance organizations may result in lower reimbursement for pharmaceutical products. We expect that these trends will continue as these payors implement various proposals or regulatory policies, including various provisions of the recent health reform legislation that affect reimbursement of these products. There are currently, and we expect that there will continue to be, a number of federal and state proposals to implement controls on reimbursement and pricing, directly and indirectly.

Government Regulation

The FDA and comparable regulatory agencies in state and local jurisdictions and in foreign countries impose substantial requirements upon the clinical development, manufacture and marketing of pharmaceutical products. These agencies and other federal, state and local entities regulate research and development activities and the testing, manufacture, quality control, safety, effectiveness, labeling, storage, packaging, recordkeeping, tracking, approval, import, export, distribution, advertising and promotion of our products and product candidates. A new drug must be approved by the FDA through the NDA process before it may be legally marketed in the United States. The process of obtaining regulatory approvals and the subsequent compliance with applicable federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources.

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

- non-clinical laboratory and animal tests that must be conducted in accordance with good laboratory practices, or GLP, requirements and other applicable regulations;
- submission of an IND, which must be received by the FDA and become effective before human clinical trials may begin;
- approval by an independent institutional review board, or IRB, or ethics committee at each clinical site or centrally before each trial may be initiated;
- performance of adequate and well-controlled human clinical trials to establish the safety and efficacy of the proposed product candidate for its intended use, performed in accordance with good clinical practice requirements, or GCPs;
- preparation and submission of a NDA to the FDA;
- satisfactory completion of an FDA advisory committee review, if applicable;
- pre-approval inspection of manufacturing facilities at which the drug is produced to assess their compliance with cGMPs and of selected clinical investigation sites to assess compliance with GCPs; and
- FDA approval of an NDA to permit commercial marketing for particular indications for use.

Clinical Trials

The testing and regulatory approval process requires substantial time, effort and financial resources. Preclinical studies include laboratory evaluation of drug substance chemistry, pharmacology, toxicity and drug product formulation, as well as animal studies to assess potential safety and efficacy. Prior to commencing the first human clinical trial with a product candidate, we must submit the results of the preclinical tests and preclinical literature, together with manufacturing information, analytical data and any available clinical data or literature, among other things, to the FDA as part of an IND. An IND is a request for authorization from the FDA to administer an investigational new drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol(s) for clinical studies.

The IND becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day time period, raises safety concerns or questions about the conduct of the clinical trial by imposing a clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. Submission of an IND may not result in FDA authorization to commence a clinical trial.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with GCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical study. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A separate submission to the existing IND must be made for each successive clinical trial conducted during product development, as well as amendments to previously submitted clinical trials. Further, an independent IRB for each study site proposing to conduct the clinical trial must review and approve the plan for any clinical trial, its informed consent form and other communications to study subjects before the clinical trial commences at that site. The IRB must continue to oversee the clinical trial while it is being conducted, including any changes to the study plans. Regulatory authorities, an IRB or the sponsor may suspend or discontinue a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk, the clinical trial is not being conducted in accordance with the FDA's or the IRB's requirements, if the drug has been associated with unexpected serious harm to subjects, or based on evolving business objectives or competitive climate. Some studies also include a data safety monitoring board, which receives special access to unblinded data during the clinical trial and may advise us to halt the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. Depending on its charter, this group may determine whether a trial may move forward at designated check points based on access to certain data from the trial. The FDA or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the drug has been associated with unexpected serious harm to patients. There are also requirements governing the reporting of ongoing clinical studies and clinical study results to public registries.

In general, for purposes of NDA approval, human clinical trials are typically conducted in three sequential phases that may overlap.

- *Phase 1* - The product candidate is initially introduced into healthy subjects or patients with the target disease or condition. These studies are conducted to test the product candidate for safety, dosage tolerance, structure-activity relationships, mechanism of action, absorption, metabolism, distribution and excretion. If possible, Phase 1 trials may also be used to gain early evidence of product effectiveness.

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

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

In the case of a 505(b)(2) NDA, some of the above-described studies and preclinical studies may not be required or may be abbreviated. Pharmacokinetic and other bridging studies may be needed, however, to demonstrate the relevance of the studies that were previously conducted by other sponsors to the drug that is the subject of the NDA.

The FDA may require, or companies may pursue, additional clinical trials after a product is approved. These so-called Phase 4, or post-market, studies may be used to gain additional experience from the treatment of patients in the intended therapeutic indication. In certain instances, the FDA may mandate the performance of Phase 4 clinical trials as a condition of approval of an NDA.

The manufacture of investigational drugs for the conduct of human clinical trials is subject to cGMP requirements. Investigational drugs and active pharmaceutical ingredients imported into the United States are also subject to regulation by the FDA relating to their labeling and distribution. Further, the export of investigational drug products outside of the United States is subject to regulatory requirements of the receiving country as well as U.S. export requirements under the FFDCA. In addition, while the IND is active and before approval, progress reports summarizing the results of the clinical trials and nonclinical studies performed since the last progress report must be submitted at least annually to the FDA, and written IND safety reports must be submitted to the FDA and investigators for serious and unexpected suspected adverse events, findings from other studies suggesting a significant risk to humans exposed to the same or similar drugs, findings from animal or in vitro testing suggesting a significant risk to humans, and any clinically important increased incidence of a serious suspected adverse reaction compared to that listed in the protocol or investigator’s brochure.

Concurrent with clinical trials, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the product candidate as well as finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, must develop methods for testing the identity, strength, quality and purity of the final product. Additionally, appropriate packaging must be selected and tested, and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

NDA Submission and Review by the FDA

Assuming successful completion of the required clinical and preclinical testing, among other items, the results of product development, including chemistry, manufacture and controls, non-clinical studies and clinical trials are submitted to the FDA, along with proposed labeling, as part of an NDA requesting approval to market the product. Data can come from company-sponsored clinical studies intended to test the safety and effectiveness of a use of the product, or from a number of alternative sources, including studies initiated by independent investigators. The submission of an NDA requires payment of a substantial application user fee to the FDA. These user fees must be filed at the time of the first submission of the application, even if the application is being submitted on a rolling basis. Fee waivers or reductions are available in some circumstances.

In addition, under the Pediatric Research Equity Act, or PREA, an NDA or supplement to an NDA for a new active ingredient, indication, dosage form, dosage regimen or route of administration must contain data that are adequate to assess the safety and efficacy of the drug for the claimed indications in all relevant pediatric subpopulations, and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of some or all pediatric data until after approval of the product for use in adults or full or partial waivers from the pediatric data requirements.

The FDA may refer drugs which present difficult questions of safety or efficacy to an advisory committee. An advisory committee is a panel that typically includes clinicians and other experts who review, evaluate and make a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Once the FDA receives an application, it has 60 days to review the NDA to determine if it is substantially complete to permit a substantive review, before it accepts the application for filing. Once the submission is accepted for filing, the FDA begins an in-depth review of the NDA. The timeline for the FDA to complete its review of a NDA may differ based on whether the application is a standard review or priority review application. The FDA may give a priority review to applications for drugs that are intended to treat serious conditions and if approved, would provide significant improvements in the safety or effectiveness of the treatment, diagnosis, or prevention of such serious conditions. Under the goals and policies agreed to by the FDA under the Prescription Drug User Fee Act, or PDUFA, the FDA has set the review goal of ten months from the 60-day filing date to complete its initial review of a standard NDA for a new molecular entity, or NME, and make a decision on the application. For non-NME standard applications, the FDA has set the review goal of ten months from the submission date to complete its initial review and to make a decision on the application. For priority review applications, the FDA has set the review goal of reviewing NME NDAs within six months of the 60-day filing date and non-NME applications within six months of the date of receipt. Such deadlines are referred to as the PDUFA date. The review process and the PDUFA date may also be extended if the FDA requests or the NDA sponsor otherwise provides additional information or clarification regarding the submission.

The FDA reviews applications to determine, among other things, whether a product is safe and effective for its intended use and whether the manufacturing controls are adequate to assure and preserve the product's identity, strength, quality and purity. Before approving an NDA, the FDA will inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities, including contract manufacturers and subcontracts, are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving an NDA, the FDA will typically inspect one or more clinical trial sites to assure compliance with GCPs.

Once the FDA's review of the application is complete, the FDA will issue either a Complete Response Letter, or CRL, or approval letter. A CRL indicates that the review cycle of the application is complete, and the application is not ready for approval. A CRL will describe all of the deficiencies that the FDA has identified in the NDA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the CRL without first conducting required inspections and/or reviewing proposed labeling. In issuing the CRL, the FDA may recommend actions that the applicant might take to place the NDA in condition for approval, including requests for additional information or clarification. Even with the submission of additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval. If and when those conditions have been met to the FDA's satisfaction, the FDA may issue an approval letter. An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications.

The FDA may delay or refuse approval of an NDA if applicable regulatory criteria are not satisfied, require additional testing or information and/or require post-marketing testing and surveillance to monitor safety or efficacy of a product, or impose other conditions, including distribution restrictions or other risk management mechanisms. For example, the FDA may require a risk evaluation and mitigation strategy, or REMS, as a condition of approval or following approval. A REMS is a safety strategy to manage a known or potential serious risk associated with a medicine and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries, and other risk minimization tools.

If regulatory approval of a product is granted, such approval may entail limitations on the indicated uses for which such product may be marketed or may include contraindications, warnings or precautions in the product labeling, including a boxed warning. If the FDA requires a boxed warning, the sponsor may also be subject to specified promotional restrictions, such as the prohibition of reminder advertisements. The FDA also may not approve the inclusion of labeling claims necessary for successful marketing. Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing regulatory standards is not maintained or if problems occur after the product reaches the marketplace. In addition, the FDA may require Phase 4 post-marketing studies to monitor the effect of approved products and may limit further marketing of the product based on the results of these post-marketing studies.

Post-approval Requirements

Any products manufactured or distributed pursuant to FDA approvals are subject to continuing regulation by the FDA, including manufacturing, periodic reporting, product sampling and distribution, advertising, promotion, drug shortage reporting, compliance with any post-approval requirements imposed as a conditional of approval such as Phase 4 clinical trials, REMS and surveillance, recordkeeping and reporting requirements, including adverse experiences.

After approval, most changes to the approved product, such as adding new indications or other labeling claims are subject to prior FDA review and approval. There also are continuing, annual human prescription drug program fee requirements for approved products. Drug manufacturers and their subcontractors are required to register their establishments with the FDA and certain state agencies and to list their drug products and are subject to periodic announced and unannounced inspections by the FDA and these state agencies for compliance with cGMPs and other requirements, which impose procedural and documentation requirements upon us and our third-party manufacturers. We cannot be certain that we or our present or future suppliers will be able to comply with the cGMP regulations and other FDA regulatory requirements.

Changes to the manufacturing process are strictly regulated and often require prior FDA approval before being implemented, or FDA notification. FDA regulations also require investigation and correction of any deviations from cGMPs and specifications and impose reporting and documentation requirements upon the sponsor and any third-party manufacturers that the sponsor may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain cGMP compliance.

Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in withdrawal of marketing approval, mandatory revisions to the approved labeling to add new safety information or other limitations, imposition of post-market studies or clinical trials to assess new safety risks, or imposition of distribution or other restrictions under a REMS program, among other consequences.

The FDA closely regulates the marketing and promotion of drugs. A company can make only those claims relating to safety and efficacy, purity and potency that are approved by the FDA. Physicians, in their independent professional medical judgment, may prescribe legally available products for uses that are not described in the product’s labeling and that differ from those tested by us and approved by the FDA. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer’s communications on the subject of off-label use of their products. However, companies may share truthful and not misleading information that is otherwise consistent with a product’s FDA-approved labelling.

In addition, the distribution of prescription pharmaceutical products, including samples, is subject to the Prescription Drug Marketing Act, or PDMA, which regulates the distribution of drugs and drug samples at the federal level, and sets minimum standards for the registration and regulation of drug distributors by the states. Both the PDMA and state laws limit the distribution of prescription pharmaceutical product samples and impose requirements to ensure accountability in distribution. The Drug Supply Chain Security Act also imposes obligations on manufacturers of pharmaceutical products related to product tracking and tracing.

Failure to comply with any of the FDA’s requirements could result in significant adverse enforcement actions. These include a variety of administrative or judicial sanctions, such as refusal to approve pending applications, withdrawal of an approval, imposition of a clinical hold or termination of clinical trials, warning letters, untitled letters, modification of promotional materials or labeling, product recalls, product seizures or detentions, refusal to allow imports or exports, total or partial suspension of production or distribution, debarment, injunctions, fines, consent decrees, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, refusals of government contracts and new orders under existing contracts, exclusion from participation in federal and state healthcare programs, restitution, disgorgement or civil or criminal penalties, including fines and individual imprisonment. Any of these sanctions could result in adverse publicity, among other adverse consequences.

Orphan drug designation and exclusivity

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug intended to treat a rare disease or condition, defined as a disease or condition with a patient population of fewer than 200,000 individuals in the United States, or a patient population greater than 200,000 individuals in the United States and when there is no reasonable expectation that the cost of developing and making available the drug in the United States will be recovered from sales in the United States for that drug. Orphan drug designation must be requested before submitting an NDA. After the FDA grants orphan drug designation, the generic identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA.

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

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

Hatch-Waxman Act

Section 505 of the FFDCA describes three types of marketing applications that may be submitted to the FDA to request marketing authorization for a new drug. A Section 505(b)(1) NDA is an application that contains full reports of investigations of safety and efficacy. A 505(b)(2) NDA is an application that contains full reports of investigations of safety and efficacy but where at least some of the information required for approval comes from investigations that were not conducted by or for the applicant and for which the applicant has not obtained a right of reference or use from the person by or for whom the investigations were conducted. This regulatory pathway enables the applicant to rely, in part, on the FDA's prior findings of safety and efficacy for an existing product, or published literature, in support of its application. The FDA may also require 505(b)(2) applicants to perform additional studies or measurements to support any changes from the reference listed drug. The FDA may then approve the new product candidate for all or some of the labeled indications for which the referenced product has been approved, as well as for any new indication sought by the 505(b)(2) applicant. Section 505(j) establishes an abbreviated approval process for a generic version of approved drug products through the submission of an abbreviated new drug application, or ANDA. An ANDA provides for marketing of a generic drug product that has the same active ingredients, dosage form, strength, route of administration, labeling, performance characteristics and intended use, among other things, to a previously approved product. ANDAs are termed "abbreviated" because they are generally not required to include preclinical and clinical data to establish safety and efficacy. Instead, generic applicants must scientifically demonstrate that their product is bioequivalent to, or performs in the same manner as, the innovator drug through in vitro, in vivo, or other testing. The generic version must deliver the same amount of active ingredients into a subject's bloodstream in the same amount of time as the innovator drug and can often be substituted by pharmacists under prescriptions written for the reference listed drug.

In seeking approval for a drug through an NDA, including a 505(b)(2) NDA, applicants are required to list with the FDA patents whose claims cover the applicant's product. Upon approval of an NDA, each of the patents listed in the application for the drug is then published in the Orange Book. These products may be cited by potential competitors in support of approval of an ANDA or 505(b)(2) NDA.

Any applicant who files an ANDA seeking approval of a generic equivalent version of a drug listed in the Orange Book or a 505(b)(2) NDA referencing a drug listed in the Orange Book must certify to the FDA that (1) no patent information on the drug or method of use that is the subject of the application has been submitted to the FDA; (2) such patent has expired; (3) the date on which such patent expires; or (4) such patent is invalid or will not be infringed upon by the manufacture, use or sale of the drug product for which the application is submitted. This last certification is known as a Paragraph IV certification. Generally, the ANDA or 505(b)(2) NDA cannot be approved until all listed patents have expired, except where the ANDA or 505(b)(2) NDA applicant challenges a listed patent through a Paragraph IV certification. If the applicant does not challenge the listed patents or does not indicate that it is not seeking approval of a patented method of use, the ANDA or 505(b)(2) NDA application will not be approved until all of the listed patents claiming the referenced product have expired, or, if permissible, are carved out.

If the ANDA or 505(b)(2) NDA applicant has provided a Paragraph IV certification to the FDA, the applicant must also send notice of the Paragraph IV certification to the holder of the NDA for the reference listed drug and the patent owner once the application has been accepted for filing by the FDA. The NDA holder or patent owner may then initiate a patent infringement lawsuit in response to the notice of the Paragraph IV certification. The filing of a patent infringement lawsuit within 45 days of the receipt of a Paragraph IV certification prevents the FDA from approving the application until the earlier of 30 months from the date of the lawsuit, expiration of the patent, settlement of the lawsuit, a decision in the infringement case that is favorable to the applicant or such shorter or longer period as may be ordered by a court. This prohibition is generally referred to as the 30-month stay. In instances where an ANDA or 505(b)(2) NDA applicant files a Paragraph IV certification, the NDA holder or patent owner regularly take action to trigger the 30-month stay, recognizing that the related patent litigation may take many months or years to resolve. Thus, approval of an ANDA or 505(b)(2) NDA could be delayed for a significant period of time depending on the patent certification the applicant makes and the reference drug sponsor's decision to initiate patent litigation. The applicant may also elect to submit a statement certifying that its proposed label does not contain, or carves out, any language regarding the patented method-of-use rather than certify to a listed method-of-use patent.

The FDA provides periods of regulatory exclusivity, which provides the holder of an approved NDA limited protection from new competition in the marketplace for the innovation represented by its approved drug for a period of three or five years following the FDA's approval of the NDA. Five years of exclusivity are available to new chemical entities, or NCEs. An NCE is a drug that contains no active moiety that has been approved by the FDA in any other NDA. An active moiety is the molecule or ion, excluding those appended portions of the molecule that cause the drug to be an ester, salt, including a salt with hydrogen or coordination bonds, or other noncovalent derivatives, such as a complex, chelate, or clathrate, of the molecule, responsible for the therapeutic activity of the drug substance. During the exclusivity period, the FDA may not accept for review or approve an ANDA or a 505(b)(2) NDA submitted by another company that contains the previously approved active moiety. An ANDA or 505(b)(2) application, however, may be submitted one year before NCE exclusivity expires if a Paragraph IV certification is filed. Applicants may also seek to carve out certain drug labeling that is protected by exclusivity.

If a product is not eligible for the NCE exclusivity, it may be eligible for three years of exclusivity. Three-year exclusivity is available to the holder of an NDA, including a 505(b)(2) NDA, for a particular condition of approval, or change to a marketed product, such as a new formulation for a previously approved product, if one or more new clinical trials, other than bioavailability or bioequivalence trials, was essential to the approval of the application and was conducted or sponsored by the applicant. This three-year exclusivity period protects against FDA approval of ANDAs and 505(b)(2) NDAs for the condition of the new drug's approval. As a general matter, three-year exclusivity does not prohibit the FDA from approving ANDAs or 505(b)(2) NDAs for generic versions of the original, unmodified drug product. Five-year and three-year exclusivity will not delay the submission or approval of a full NDA; however, an applicant submitting a full NDA would be required to conduct or obtain a right of reference to all of the preclinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and efficacy.

DEA Regulation

Our products and certain of our product candidates are, or if approved, will be regulated as "controlled substances" as defined in the Controlled Substances Act of 1970, or CSA, and the DEA's implementing regulations, which establish registration, security, recordkeeping, reporting, storage, distribution, importation, exportation, inventory, quota and other requirements administered by the DEA. These requirements are directly applicable to us and also applicable to our contract manufacturers and to distributors, prescribers and dispensers of our product candidates. The DEA regulates the handling of controlled substances through a closed chain of distribution. This control extends to the equipment and raw materials used in their manufacture and packaging in order to prevent loss and diversion into illicit channels of commerce.

The DEA regulates controlled substances as Schedule I, II, III, IV or V substances. Schedule I substances by definition have no established medicinal use and may not be marketed or sold in the United States. A pharmaceutical product may be listed as Schedule II, III, IV or V, with Schedule II substances considered to present the highest risk of abuse and Schedule V substances the lowest relative risk of abuse among such substances. Schedule II drugs are those that meet the following criteria:

- the drug has a high potential for abuse;
- the drug has a currently accepted medical use in treatment in the United States or a currently accepted medical use with severe restrictions; and
- abuse of the drug may lead to severe psychological or physical dependence.

APADAZ and AZSTARYS are listed as Schedule II controlled substances under the CSA. For Schedule II controlled substances, the importation of APIs for our product candidates, as well as the manufacture, shipping, storage, sales and use of the products, are subject to a high degree of regulation. In addition to maintaining an importer and/or exporter registration, importers and exporters of controlled substances must obtain a permit for every import of a Schedule I or II substance and a narcotic substance in Schedule III, IV and V, as well as every export of a Schedule I or II substance and a narcotic substance in Schedule III and IV. For all other drugs in Schedule III, IV and V, importers and exporters must submit an import or export declaration. Schedule II drugs are subject to the strictest requirements for registration, security, recordkeeping and reporting. Also, distribution and dispensing of these drugs are highly regulated. For example, all Schedule II drug prescriptions must be signed by a physician, physically presented to a pharmacist and may not be refilled without a new prescription. Electronic prescriptions may also be permissible depending on the state, so long as the prescription complies with the DEA's requirements for electronic prescriptions.

SDX, which is the sole API in KP1077 and KP879, has been listed as a Schedule IV controlled substance under the CSA. Controlled substances classified in Schedule III, IV, and V are also subject to registration, recordkeeping, reporting, and security requirements. For example, Schedule III drug prescriptions must be authorized by a physician and may not be refilled more than six months after the date of the original prescription or more than five times. A prescription for controlled substances classified in Schedules III, IV, and V issued by a physician, may be communicated either orally, in writing or by facsimile to the pharmacies. Controlled substances that are also classified as narcotics, such as hydrocodone, oxycodone and hydromorphone, are also subject to additional DEA requirements, such as manufacturer reporting of the import of narcotic raw material.

Annual registration is required for any facility that manufactures, distributes, dispenses, imports or exports any controlled substance. The registration is specific to the particular location, activity and controlled substance schedule. For example, separate registrations are needed for import and manufacturing, and each registration will specify which schedules of controlled substances are authorized. Similarly, separate registrations are also required for separate facilities. Acquisition and distribution transactions must also be reported for Schedule I and II controlled substances, as well as Schedule III narcotic substances.

The DEA typically inspects a facility to review its security measures prior to issuing a registration and on a periodic basis. Security requirements vary by controlled substance schedule, with the most stringent requirements applying to Schedule I and Schedule II substances. Required security measures include background checks on employees and physical control of inventory through measures such as cages, surveillance cameras and inventory reconciliations. Records must be maintained for the handling of all controlled substances, and periodic reports made to the DEA, for example distribution reports for Schedule I and II controlled substances, Schedule III substances that are narcotics, and other designated substances. Reports must also be made for thefts or losses of any controlled substance, and to obtain authorization to destroy any controlled substance. In addition, special permits and notification requirements apply to imports and exports of narcotic drugs. To enforce these requirements, the DEA conducts periodic inspections of registered establishments that handle controlled substances. Failure to maintain compliance with applicable requirements, particularly as manifested in loss or diversion, can result in administrative, civil or criminal enforcement action that could have a material adverse effect on our business, results of operations and financial condition. The DEA may seek civil penalties, refuse to renew necessary registrations, or initiate administrative proceedings to revoke those registrations. In some circumstances, violations could result in criminal proceedings.

In addition, a DEA quota system controls and limits the availability and production of controlled substances in Schedule I or II. Distributions of any Schedule I or II controlled substance or Schedule III narcotic must also be accompanied by special order forms, with copies provided to the DEA. Because AZSTARYS, APADAZ and our product candidates may be regulated as Schedule II controlled substances, they may be subject to the DEA's production and procurement quota scheme. The DEA establishes annually an aggregate quota for how much of a controlled substance may be produced in total in the United States based on the DEA's estimate of the quantity needed to meet legitimate scientific and medicinal needs. The limited aggregate amount of stimulants that the DEA allows to be produced in the United States each year is allocated among individual companies, which must submit applications annually to the DEA for individual production and procurement quotas. We and our contract manufacturers must receive an annual quota from the DEA in order to produce or procure any Schedule I or Schedule II substances for use in manufacturing of our product candidates. The DEA may adjust aggregate production quotas and individual production and procurement quotas from time to time during the year, although the DEA has substantial discretion in whether or not to make such adjustments. Our, or our contract manufacturers', quota of an active ingredient may not be sufficient to meet commercial demand or complete clinical trials. Any delay, limitation or refusal by the DEA in establishing our, or our contract manufacturers', quota for controlled substances could delay or stop our clinical trials or product launches, which could have a material adverse effect on our business, financial position and results of operations.

Individual states also independently regulate controlled substances. We and our contract manufacturers will be subject to state regulation on distribution of these products, including, for example, state requirements for licensures or registration.

Other Healthcare and Privacy Regulatory Frameworks

Our business activities, including but not limited to, research, sales, promotion, distribution, medical education and other activities are subject to regulation by numerous regulatory and law enforcement authorities in the United States in addition to the FDA, including potentially the Department of Justice, the U.S. Department of Health and Human Services and its various divisions, including the CMS and the Health Resources and Services Administration, the Department of Veterans Affairs, the Department of Defense and state and local governments. Our business activities must comply with numerous healthcare laws as well as privacy and information security laws, including those described below. Compliance with government regulations requires the expenditure of substantial time and financial resources.

The federal Anti-Kickback Statute prohibits, among other things, any person or entity, from knowingly and willfully offering, paying, soliciting or receiving any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward, or in return for, the referral of an individual for, or purchasing, leasing, ordering, or arranging for the purchase, lease or order of, any good, facility, item or service reimbursable under Medicare, Medicaid or other federal healthcare programs. The term remuneration has been interpreted broadly to include anything of value. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution. The exceptions and safe harbors are drawn narrowly and practices that involve remuneration that may be alleged to be intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the federal Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Additionally, a person or entity does not need to have actual knowledge of the federal Anti-Kickback Statute, or the specific intent to violate it to have committed a violation.

The federal civil and criminal false claims laws, including the federal False Claims Act, which can be enforced by private citizens through civil whistleblower or *qui tam* actions, prohibit, among other things, any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to, or approval by, the federal government, including the Medicare and Medicaid programs, or knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim or to avoid, decrease or conceal an obligation to pay money to the federal government. In addition, a claim for payment of items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act.

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

The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, created additional 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 whether the payor is public or private, knowingly and willfully embezzling or stealing from a health care benefit program, willfully obstructing a criminal investigation of a health care offense 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 does not need to have actual knowledge of the statute, or the specific intent to violate it, to have committed a violation.

Additionally, the federal Physician Payments Sunshine Act and its implementing regulations, require certain manufacturers of drugs, devices, biologicals and medical supplies for which payment is available under Medicare, Medicaid or the Children’s Health Insurance Program (with specified exceptions) to report annually information related to specified payments or other transfers of value provided to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), certain other healthcare providers (physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, anesthesiologist assistants, and certified nurse-midwives) and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, such providers and teaching hospitals and to report annually specified ownership and investment interests held by physicians and their immediate family members.

Depending on the circumstances, failure to comply with these laws can result in significant penalties, including criminal, civil and/or administrative penalties, damages, fines, disgorgement, debarment from government contracts, individual imprisonment, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, exclusion from government programs, refusal to allow us to enter into supply contracts, including government contracts, reputational harm, diminished profits and future earnings and the curtailment or restructuring of our operations, any of which could adversely affect our business.

Data Privacy and Security Laws

We may be subject to data privacy and security regulation by foreign, federal, state and local governments. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and its implementing regulations, imposes requirements on covered entities, including certain healthcare providers, health plans and healthcare clearinghouses, and their respective business associates, independent contractors or agents of covered entities that receive or obtain individually identifiable health information in connection with providing a service on behalf of a covered entity, and their covered subcontractors, relating to the privacy, security and transmission of individually identifiable health information.

Many states have also adopted comparable privacy and security laws and regulations. For example, the California Consumer Privacy Act of 2018, or CCPA, went into effect on January 1, 2020. Although the CCPA exempts certain data processed in the context of clinical trials, the CCPA, to the extent applicable to our business and operations, may increase our compliance costs and potential liability with respect to the personal information we maintain about California residents. Further, the California Privacy Rights Act, or the CPRA, recently passed in California. The CPRA will impose additional data protection obligations on covered businesses, including additional consumer rights processes, limitations on data uses, new audit requirements for higher risk data, and opt outs for certain uses of sensitive data. It will also create a new California data protection agency authorized to issue substantive regulations and could result in increased privacy and information security enforcement. Several states and local jurisdictions have also enacted legislation requiring pharmaceutical companies to, among other things, establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, clinical trials and other activities, or register their sales representatives, as well as prohibiting pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical companies for use in sales and marketing, and prohibiting certain other sales and marketing practices.

In Europe, the General Data Protection Regulation, or GDPR, imposes stringent requirements relating to processing personal data of individuals within the European Economic Area, or the EEA. European data protection laws also impose strict rules on the transfer of personal data out of the EEA, Switzerland and the United Kingdom. Further, the GDPR authorizes the imposition of penalties (such as restrictions or prohibitions on personal data processing) and large fines for noncompliance, including the potential for fines of up to €20 million or 4% of the annual global revenues of the noncompliant company, whichever is greater. From January 1, 2021, companies have had to comply with the GDPR and also the United Kingdom GDPR, or the UK GDPR, which, together with the amended UK Data Protection Act 2018, retains the GDPR in UK national law.

Healthcare Reform Measures

The United States and some foreign jurisdictions are considering or have enacted a number of legislative and regulatory proposals designed to change the healthcare system in ways that could affect our ability to sell our products profitably. Among policy makers and payors in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives.

For example, in March 2010, the ACA was passed, which has substantially changed health care financing by both governmental and private insurers, and significantly affected the U.S. pharmaceutical industry. The ACA, among other things, subjected manufacturers to new annual fees and taxes for specified branded prescription drugs, increased the minimum Medicaid rebates owed by most manufacturers under the Medicaid Drug Rebate Program, expanded health care fraud and abuse laws, revised the methodology by which rebates owed by manufacturers to the state and federal government for covered outpatient drugs under the Medicaid Drug Rebate Program are calculated, imposed an inflation penalty on new formulations of drugs, extended the Medicaid Drug Rebate program to utilization of prescriptions of individuals enrolled in Medicaid managed care organizations, expanded the 340B program which caps the price at which manufacturers can sell covered outpatient pharmaceuticals to specified hospitals, clinics and community health centers, and provided incentives to programs that increase the federal government’s comparative effectiveness research.

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

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

Further, there has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the cost of drugs under Medicare, and reform government program reimbursement methodologies for drugs. 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. It is also possible that additional governmental action is taken in response to the COVID-19 pandemic.

The Foreign Corrupt Practices Act

The Foreign Corrupt Practices Act, or FCPA, prohibits any U.S. individual or business from paying, offering or authorizing payment or offering of anything of value, directly or indirectly, to any foreign official, political party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with accounting provisions requiring the companies to maintain books and records that accurately and fairly reflect all transactions of the companies, including international subsidiaries, and to devise and maintain an adequate system of internal accounting controls for international operations.

Foreign Regulation

In addition to regulations in the United States, we will be subject to a variety of foreign regulations governing clinical trials and commercial sales and distribution of our products to the extent we choose to develop or sell any products outside of the United States. The approval process varies from country to country and the time may be longer or shorter than that required to obtain FDA approval. The requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement vary greatly from country to country.

Employees

As of December 31, 2021, we employed 24 full-time employees.

Corporate Information

We were incorporated under the laws of the State of Iowa in October 2006 and were reincorporated under the laws of the State of Delaware in May 2014.

ITEM 1A. RISK FACTORS.

You should carefully consider all the risk factors and uncertainties described below, in addition to other information contained in this Annual Report on Form 10-K, including the section of this report titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our financial statements and related notes, before investing in our common stock. If any of the following risks materialize, our business, financial condition and results of operations could be seriously harmed. This Annual Report on Form 10-K also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements because of factors that are described below and elsewhere in this Annual Report on Form 10-K.

Risks Related to the Development of Our Product Candidates

If commercialization of AZSTARYS or any of our product candidates, if approved, are not successful, or we experience significant delays in commercialization, our business will be harmed.

We currently generate minimal commercial revenue from the sale of any prodrugs and we may never be able to successfully commercialize a prodrug product. For instance, we entered into the KP415 License Agreement with Commave pursuant to which we granted an exclusive, worldwide license to Commave to develop, manufacture and commercialize AZSTARYS and KP484 worldwide. We cannot guarantee that Commave will be able to successfully develop, manufacture or commercialize AZSTARYS or KP484 or that we will ever receive any future payments under the KP415 License Agreement.

We have invested substantially all our efforts and financial resources in the development of our proprietary LAT platform technology, the identification of potential product candidates and the development of our product candidates. Our ability to generate revenue from AZSTARYS under the KP415 License Agreement and generate revenue from any of our product candidates will depend heavily on their successful development and eventual commercialization. The success of AZSTARYS and any of our product candidates will depend on several factors, including:

- successful completion of preclinical studies and requisite clinical trials;
- successful completion and achievement of endpoints in our clinical trials;
- demonstration that the risks involved with AZSTARYS and any of our product candidates are outweighed by the benefits;
- successful development of our manufacturing processes for AZSTARYS under the KP415 License Agreement and for any of our product candidates, including entering into and maintaining arrangements with third-party manufacturers;
- successful completion of an FDA preapproval inspection of the facilities used to manufacture any of our product candidates for which we may submit an NDA;
- receipt of timely marketing approvals from applicable regulatory authorities, including, if applicable, the determination by the DEA of the controlled substance schedule for a product candidate, taking into account the recommendation of the FDA;
- obtaining differentiating claims in the labels for our product candidates;
- obtaining and maintaining patent, trademark and trade secret protection and regulatory exclusivity for AZSTARYS and any of our product candidates and otherwise protecting our rights in our intellectual property portfolio;
- maintaining compliance with regulatory requirements, including cGMPs;
- launching commercial sales of AZSTARYS under the KP415 License Agreement and launching commercial sales of any of our product candidates, if and when approved, whether alone or in collaboration with Commave or others;
- acceptance of AZSTARYS and any of our product candidates, if approved, by patients, the medical community and third-party payors;
- competing effectively with other therapies;
- obtaining and maintaining healthcare coverage and adequate reimbursement; and
- maintaining a continued acceptable safety and efficacy profile of any of our products following approval.

Whether regulatory approval will be granted is unpredictable and depends upon numerous factors, including the substantial discretion of the regulatory authorities. If, following submission, our NDA for a product candidate is not accepted for substantive review or approval, the FDA or other comparable foreign regulatory authorities may require that we conduct additional studies or clinical trials, provide additional data, take additional manufacturing steps or require other conditions before they will reconsider our application. If the FDA or other comparable foreign regulatory authorities require additional studies, clinical trials or data, we would incur increased costs and delays in the marketing approval process, which may require us to expend more resources than we have available. In addition, the FDA or other comparable foreign regulatory authorities may not consider sufficient any additional required studies, clinical trials, data or information that we perform and complete or generate, or we may decide to abandon the program.

It is possible that none of our product candidates in clinical development or any of our future product candidates will ever obtain regulatory approval, even if we expend substantial time and resources seeking such approval.

If we do not achieve one or more of these factors in a timely manner or at all, we could experience significant delays, Corium could experience an inability to successfully commercialize AZSTARYS or any of our product candidates covered by the KP415 License Agreement, if approved, or we could experience an inability to successfully commercialize any of our product candidates approved for marketing in the future, if any, which would harm our business.

Our research and development activities are focused on discovering and developing proprietary prodrugs, and we are taking an innovative approach to discovering and developing prodrugs, which may never lead to marketable prodrug products.

A key element of our strategy is to use our proprietary LAT platform technology to build a pipeline of prodrugs and progress product candidates based on these prodrugs through clinical development for the treatment of a variety of diseases and conditions. The scientific discoveries that form the basis for our efforts to discover and develop prodrugs are relatively new. As our scientific efforts are primarily focused on discovering novel prodrugs with new molecular structures, the evidence to support the feasibility of developing product candidates based on these discoveries is both preliminary and limited. Although our research and development efforts to date have resulted in a pipeline of prodrug product candidates, we may not be able to develop those product candidates into prodrugs that are bioequivalent, safe and/or effective or that offer commercially significant improvements over already approved drugs. Even if we are successful in continuing to build our pipeline, the potential product candidates that we identify may not be suitable for clinical development, for reasons including being shown to have harmful side effects, a lack of efficacy, or other characteristics that indicate that they are unlikely to be prodrugs that will receive marketing approval and achieve market acceptance. If AZSTARYS is not successfully commercialized under our KP415 License Agreement and we do not successfully develop and commercialize any of our product candidates based upon our proprietary LAT platform technology, we will not be able to obtain product revenue in future periods, which likely would result in significant harm to our financial position and adversely affect our stock price.

If we are not able to obtain required regulatory approvals for any of our product candidates, or the approved labels are not sufficiently differentiated from other competing products, we will not be able to commercialize them and our ability to generate revenue or profits or to raise future capital could be limited.

The research, testing, manufacturing, labeling, packaging, storage, approval, sale, marketing, advertising and promotion, pricing, export, import and distribution of drug products are subject to extensive regulation by the FDA and other regulatory authorities in the United States and other countries, which regulations differ from country to country and change over time. We are not permitted to market any of our product candidates in the United States until we receive approval of an NDA from the FDA, or in any foreign countries until we receive the requisite approvals in such countries. In the United States, the FDA generally requires the completion of non-clinical testing and clinical trials of each drug to establish its safety and efficacy and extensive pharmaceutical development to ensure its quality and other factors before an NDA is approved. Regulatory authorities in other jurisdictions impose similar requirements. Of the large number of drugs in development, only a small percentage result in the submission of an NDA to the FDA and even fewer are approved for commercialization.

Even if regulatory approval is obtained, subsequent safety, efficacy, quality or other issues can result in a product approval being suspended or withdrawn, or the approved label for any approved product may not be sufficiently differentiated from other competing products to support market adoption thereof. In March 2021, the FDA approved the NDA for AZSTARYS, a once-daily product for the treatment of ADHD in patients ranging from six years and older. In February 2018, we announced that the FDA approved the NDA for APADAZ for the short-term (no more than 14 days) management of acute pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate. Even with the regulatory approval of AZSTARYS and APADAZ by the FDA, we cannot guarantee that the FDA will approve any of our product candidates for commercial sale or approve any proposed label we may have for any such product candidate. If our development efforts for our product candidates, including our efforts to obtain regulatory approval, are not successful for their planned indications or are delayed, or if adequate demand for our product candidates that are approved for marketing, if any, is not generated, our business will be harmed.

The success of our product candidates will depend on the receipt and maintenance of regulatory approval and the issuance and maintenance of such approval is uncertain and subject to a number of risks, including the following:

- the FDA or comparable foreign regulatory authorities, institutional review boards, or IRBs, or ethics committees may disagree with the design or conduct of our clinical trials;
- the results of our clinical trials may not meet the level of statistical or clinical significance required by the FDA or other regulatory agencies for marketing approval or for us to receive approval for claims that are necessary for commercialization;
- the dosing in a particular clinical trial may not be at an optimal level;
- patients in our clinical trials may suffer adverse effects for reasons that may or may not be related to our product candidates;
- the data collected from clinical trials may not be sufficient to support submissions to regulatory authorities or to obtain regulatory approval in the United States or elsewhere;
- the FDA or comparable foreign regulatory authorities may fail to approve the manufacturing processes or facilities of third-party manufacturers with which we contract for clinical and commercial supplies or may later suspend or withdraw such approval;
- 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; and
- even if we obtain marketing approval in one or more countries, future safety or other issues could result in the suspension or withdrawal of regulatory approval in such countries.

We have only limited experience in submitting the applications necessary to gain regulatory approvals and have relied, and expect to continue to rely, on consultants and third-party contract research organizations, or CROs, with expertise in this area to assist us in this process. Securing FDA approval requires the submission of extensive non-clinical and clinical data, information about product manufacturing processes and inspection of facilities and supporting information to the FDA for each therapeutic indication to establish a product candidate's safety and efficacy for each indication and manufacturing quality. Additionally, we cannot guarantee that regulators will agree with our assessment of the results of the clinical trials we have conducted or that any future trials will be successful.

Any product candidates we develop may prove to have undesirable or unintended side effects, toxicities or other characteristics that may preclude our obtaining regulatory approval or prevent or limit commercial use with respect to one or all intended indications.

The process of obtaining regulatory approvals is expensive, often takes many years, if approval is obtained at all, and can vary substantially based upon, among other things, the type, complexity and novelty of the product candidates involved, the jurisdiction in which regulatory approval is sought and the substantial discretion of the regulatory authorities. Changes in the regulatory approval policy during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for a submitted product application may cause delays in the approval or rejection of an application or may result in future withdrawal of approval. Regulatory approval obtained in one jurisdiction does not necessarily mean that a product candidate will receive regulatory approval in all jurisdictions in which we may seek approval, but the failure to obtain approval in one jurisdiction may negatively impact our ability to seek approval in a different jurisdiction. Failure to obtain regulatory marketing approval of our product candidates in any indication will prevent us from commercializing those product candidates for that indication, and our ability to generate revenue will be impaired.

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

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

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

If the FDA does not conclude that our product candidates satisfy the requirements for the 505(b)(2) NDA pathway as anticipated, the approval pathway for our product candidates will likely take significantly longer, cost significantly more and entail significantly greater complications and risks than anticipated, and the FDA may not ultimately approve our product candidates.

A key element of our strategy is to seek FDA approval for most of our product candidates under Section 505(b)(2) of the FFDCA, otherwise known as the 505(b)(2) NDA pathway with any NDA submitted thereunder a 505(b)(2) NDA, where possible. The 505(b)(2) NDA pathway permits the filing of an NDA where at least some of the information required for approval comes from studies not conducted by or for the applicant and for which the applicant has not obtained a right of reference. Section 505(b)(2), if applicable to us under the FFDCA, would allow an NDA we submit to the FDA to rely in part on data in the public domain or the FDA's prior conclusions regarding the safety and effectiveness of approved compounds, which could expedite the development program for our future product candidates by potentially decreasing the amount of nonclinical and/or clinical data that we would need to generate in order to obtain FDA approval. Such reliance is typically predicated on a showing of bioequivalence or comparable bioavailability to an approved drug. AZSTARYS was approved via the 505(b)(2) NDA pathway on March 2, 2021, and APADAZ was approved via the 505(b)(2) NDA pathway on February 23, 2018.

If the FDA does not allow us to pursue the 505(b)(2) NDA pathway as anticipated, or if we cannot demonstrate bioequivalence or comparable bioavailability of our product candidates to approved products, we may need to conduct additional clinical trials, provide additional data and information, and meet additional standards for regulatory approval. Moreover, even if the FDA does allow us to pursue the 505(b)(2) NDA pathway, depending on the product candidate, we may still need to conduct additional clinical trials, including clinical trials to assess product safety or efficacy. If this were to occur, the time and financial resources required to obtain FDA approval for our product candidates, and complications and risks associated with our product candidates, would likely substantially increase.

Moreover, our inability to pursue the 505(b)(2) NDA pathway could result in new competitive products reaching the market more quickly than our product candidates, which could hurt our competitive position and our business prospects. Even if we are allowed to pursue the 505(b)(2) NDA pathway, we cannot assure you that our product candidates will receive the requisite approvals for commercialization on a timely basis, if at all. Other companies may achieve product approval of similar products before we do, which would delay our ability to obtain product approval, expose us to greater competition, and would require that we seek approval via alternative pathways.

In addition, notwithstanding the approval of several products by the FDA under Section 505(b)(2) over the last few years, pharmaceutical companies and others have objected to the FDA's interpretation of Section 505(b)(2). If the FDA's interpretation of Section 505(b)(2) is successfully challenged, the FDA may change its policies and practices with respect to Section 505(b)(2) regulatory approvals, which could delay or even prevent the FDA from approving any NDA that we submit under Section 505(b)(2). In addition, the pharmaceutical industry is highly competitive, and Section 505(b)(2) NDAs are subject to certain requirements designed to protect the patent rights of sponsors of previously approved drugs that are referenced in a Section 505(b)(2) NDA. These requirements may give rise to patent litigation and mandatory delays in approval of our NDAs for up to 30 months or longer depending on the outcome of any litigation. It is not uncommon for a manufacturer of an approved product to file a citizen petition with the FDA seeking to delay approval of, or impose additional approval requirements for, pending competing products. If successful, such petitions can significantly delay, or even prevent, the approval of a new product. Even if the FDA ultimately denies such a petition, the FDA may substantially delay approval while it considers and responds to the petition. In addition, even if we are able to utilize the Section 505(b)(2) regulatory pathway, there is no guarantee this would ultimately lead to streamlined product development or earlier approval.

Clinical drug development involves a lengthy and expensive process, with an uncertain outcome. We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.

The risk of failure for our product candidates is high. It is impossible to predict when or if any of our current product candidates will prove effective or safe in humans and will receive regulatory approval. Before obtaining marketing approval from regulatory authorities for the sale of any product candidate, we must complete preclinical development and then conduct clinical trials to demonstrate the safety and efficacy of our product candidates in humans. Clinical testing is expensive, difficult to design and implement, can take many years to complete and is uncertain as to outcome. A failure of one or more clinical trials can occur at any stage of testing. The outcome of preclinical studies and early clinical trials may not be predictive of the success of later clinical trials, and interim results of a clinical trial do not necessarily predict final results. Interpretation of results from early, usually smaller, studies that suggest positive trends in some subjects, requires caution. Results from later stages of clinical trials enrolling more subjects may fail to show the desired safety and efficacy results or otherwise fail to be consistent with the results of earlier trials of the same product candidates. Later clinical trial results may not replicate earlier clinical trials for a variety of reasons, including differences in trial design, different trial endpoints, or lack of trial endpoints in exploratory studies, subject population, number of subjects, subject selection criteria, trial duration, drug dosage and formulation and lack of statistical power in the earlier studies. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval of their products.

We may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent our ability to receive marketing approval or commercialize our product candidates, including:

- regulators or IRBs may not authorize us or our investigators to commence a clinical trial, conduct a clinical trial at a prospective trial site or amend clinical trial protocols as needed;
- we may experience delays in reaching, or fail to reach, agreement on acceptable clinical trial contracts or clinical trial protocols with prospective trial sites and CROs;
- clinical trials of our product candidates may produce negative or inconclusive results, including failure to demonstrate statistical significance in cases where that is required, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon prodrug development programs;
- we may be unable to obtain sufficient or adequate supply or quality of product candidates or other materials necessary for use in clinical trials, or experience delays in sufficiently developing, characterizing or controlling a manufacturing process suitable for clinical trials;
- we may experience delays in manufacturing, testing, releasing, validating or importing/exporting sufficient stable quantities of our product candidates for use in clinical trials or the inability to do any of the foregoing;
- the number of subjects required for clinical trials of our product candidates may be larger than we anticipate enrollment in these clinical trials may be slower than we anticipate, or participants may drop out of these clinical trials at a higher rate than we anticipate;
- our third-party contractors may fail to comply with regulatory requirements or trial protocols, or meet their contractual obligations to us in a timely manner, or at all;
- regulators or IRBs may require that we or our investigators suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements or a finding that the participants are being exposed to unacceptable health risks;
- the cost of clinical trials of our product candidates may be greater than we anticipate, including if we are not able to pursue the 505(b)(2) NDA pathway for approval of our product candidates;
- we will need to pay substantial application user fees, which we may not be able to afford;
- we may be required to transfer manufacturing processes to larger-scale facilities operated by a contract manufacturing organization, and we may experience delays or failures by our contract manufacturers to make any necessary changes to such manufacturing process;
- we may abandon our development program or programs based on the changing regulatory or commercial environment;
- regulatory authorities may not agree with our trial design or implementation; and
- our product candidates may have undesirable side effects or other unexpected characteristics, causing us or our investigators, regulators or IRBs to suspend or terminate the trials.

If we are required to conduct additional clinical trials or other testing of our product candidates beyond those that we currently contemplate, if we are unable to successfully complete clinical trials of our product candidates or other testing, if the results of these trials or tests are not positive or are only modestly positive or if there are safety concerns, we may:

- be delayed in obtaining marketing approval for our product candidates;
- not obtain marketing approval at all;
- obtain approval for indications or patient populations that are not as broad as intended or desired;
- obtain approval but without the claims necessary for us to successfully commercialize our product candidates;
- obtain approval with labeling that includes significant use or distribution restrictions or safety warnings;
- be subject to additional post-marketing testing, surveillance, or other requirements, such as REMS; or
- have the product removed from the market after obtaining marketing approval.

In addition, disruptions caused by the COVID-19 pandemic may increase the likelihood that we encounter such difficulties or delays in initiating, enrolling, conducting or completing our planned and ongoing clinical trials. Any inability to successfully initiate or complete clinical trials could result in additional costs to us or impair our ability to generate revenue from product sales. In addition, if we make manufacturing or formulation changes to our product candidates, we may be required to or we may elect to conduct additional studies to bridge our modified product candidates to earlier versions. Clinical trial delays could also shorten any periods during which our products have patent protection and may allow our competitors to bring products to market before we do, which could impair our ability to successfully commercialize our product candidates and may seriously harm our business.

Clinical trials must be conducted in accordance with the FDA and other applicable regulatory authorities' legal requirements, regulations or guidelines, and are subject to oversight by these governmental agencies and Ethics Committees or IRBs at the medical institutions where the clinical trials are conducted. We could encounter delays if a clinical trial is suspended or terminated by us, by the data safety monitoring board for such trial or by the FDA or any other regulatory authority, or if the IRBs of the institutions in which such trials are being conducted suspend or terminate the participation of their clinical investigators and sites subject to their review. Such authorities may suspend or terminate a clinical trial due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a product candidate, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial.

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

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

Delays in the completion of any clinical trial of our product candidates will increase our costs, slow down our product development and the regulatory approval processes and delay or potentially jeopardize our ability to commence product sales and generate product revenue. Any of these occurrences may harm our business, financial condition and prospects significantly.

If we experience delays or difficulties in the enrollment of subjects in clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.

We may not be able to initiate or continue clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible subjects to participate in these trials as may be required by the FDA or similar regulatory authorities outside the United States. We cannot predict how successful we will be at enrolling subjects in future clinical trials. If we are not successful at enrolling subjects in one clinical trial, it may affect when we are able to initiate our next clinical trial, which could result in significant delays in our efforts to pursue regulatory approval of and commercialize our product candidates. In addition, some of our competitors have ongoing clinical trials to treat the same indications as our product candidates, and subjects who would otherwise be eligible for our clinical trials may instead enroll in clinical trials of our competitors. Subject enrollment is affected by other factors including:

- the size and nature of the subject population specified in the trial protocol;
- the eligibility criteria for the study in question;
- the perceived risks and benefits of the product candidate under study;
- the fact that the product candidate is a controlled substance;
- severe or unexpected drug-related adverse events experienced by subjects in a clinical trial;
- the availability of drugs approved to treat the diseases or conditions under study;
- the efforts to facilitate timely enrollment in clinical trials;
- the patient referral practices of physicians;
- the severity of the disease or condition under investigation;
- the ability to obtain and maintain subject informed consent;
- the ability to retain subjects in the clinical trial and their return for follow-up;
- the clinical trial design, including required tests, procedures and follow-up;
- the ability to monitor subjects adequately during and after treatment;
- delays in adding new investigators and clinical sites;
- withdrawal of clinical trial sites from clinical trials; and
- the proximity and availability of clinical trial sites for prospective subjects.

Our inability to enroll a sufficient number of subjects for clinical trials would result in significant delays and could require us to abandon one or more clinical trials altogether. Enrollment delays in these clinical trials may result in increased development costs for our product candidates, which could cause our value to decline and limit our ability to obtain additional financing.

Interim, topline, or 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 publicly disclose topline or preliminary data from our preclinical studies and clinical trials, which is based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data related to the particular study or trial. We also make assumptions, estimations, calculations, and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the preliminary or topline results that we report may differ from future results of the same studies, or different conclusions or considerations may qualify such results, once additional data has been received and fully evaluated. Topline data also remains 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, preliminary or topline data should be viewed with caution until the final data are available.

From time to time, we may also disclose interim data from our preclinical studies and 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 or as patients from our clinical trials continue other treatments for their disease. Adverse differences between preliminary or interim data and final data could significantly harm our business prospects.

Further, disclosure of interim data by us or by our competitors could result in volatility in the price of our common stock. Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimates, calculations, conclusions, or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability or commercialization of the particular product candidate, and our company in general. If the interim, topline, or preliminary data that we report differs from actual results, or if others, including regulatory authorities, disagree with the conclusions reached, our ability to obtain approval for, and commercialize, any of our potential product candidates may be harmed, which could harm our business, operating results, prospects, or financial condition.

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

Regulatory authorities in some jurisdictions, including the United States, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug Act of 1983, the FDA may designate a drug as an orphan product if it is intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals in the United States, or a patient population of greater than 200,000 individuals in the United States, but for which there is no reasonable expectation that the cost of developing the drug will be recovered from sales in the United States. We have not received orphan drug designation in for any product candidate. We may seek to obtain orphan drug designation for product but there can be no assurance that the FDA will grant orphan designation for any indication for which we apply, or that we will be able to maintain such designation.

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

Even if we obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs can be approved for the same condition. Even after an orphan drug is approved, the FDA or comparable foreign regulatory authority can subsequently approve the same drug for the same condition if such regulatory authority concludes that the later drug is clinically superior because it is shown to be safer, more effective or makes a major contribution to patient care.

Orphan drug exclusivity may also be lost if the FDA later determines that the initial request for designation was materially defective. In addition, orphan drug exclusivity does not prevent the FDA from approving competing drugs for the same or similar indication containing a different active ingredient. In addition, if a subsequent drug is approved for marketing for the same or a similar indication as any of our product candidates that receive marketing approval, we may face increased competition and lose market share regardless of orphan drug exclusivity. Orphan 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.

AZSTARYS, APADAZ and certain of our product candidates contain controlled substances, the manufacture, use, sale, importation, exportation, prescribing and distribution of which are subject to regulation by the DEA and other regulatory agencies.

AZSTARYS, APADAZ, and certain of our product candidates are regulated as controlled substances, which are subject to state, federal, and foreign laws and regulations regarding their manufacture, use, sale, importation, exportation, and distribution. Among other things, controlled substances are regulated under the federal Controlled Substances Act of 1970, or CSA, and regulations of the DEA. Before we can commercialize any of our products or product candidates, if approved, the DEA will need to determine the controlled substance schedule, taking into account the recommendation of the FDA. This may be a lengthy process that could delay our marketing of a product candidate and could potentially diminish any regulatory exclusivity periods for which we may be eligible.

The DEA regulates controlled substances as Schedule I, II, III, IV or V substances. Schedule I substances by definition have no established medicinal use and may not be marketed or sold in the United States. A pharmaceutical product may be listed as Schedule II, III, IV or V, with Schedule II substances considered to present the highest risk of abuse and Schedule V substances the lowest relative risk of abuse among such substances. The DEA determined APADAZ and AZSTARYS to be Schedule II controlled substances. In addition, the DEA scheduled SDX, the prodrug present within AZSTARYS, as a Schedule IV substance. We expect that most of our product candidates, including KP484, KP879 and KP1077, if approved, will also be regulated as "controlled substances" by the DEA, which subjects AZSTARYS, APADAZ and these product candidates to additional restrictions regarding their manufacture, shipment, storage, sale and use, depending on the scheduling of the active ingredients, and may limit the commercial potential of our products and any of our product candidates, if approved.

Various states also independently regulate controlled substances. Though state controlled substances laws often mirror federal law, because the states are separate jurisdictions, they may separately schedule drugs as well. While some states automatically schedule a drug when the DEA does so, in other states there must be rulemaking or a legislative action. State scheduling may delay commercial sale of any controlled substance drug product for which we obtain federal regulatory approval and adverse scheduling could impair the commercial attractiveness of such product. We or our collaborators must also obtain separate state registrations in order to be able to obtain, handle and distribute controlled substances for clinical trials or commercial sale, and failure to meet applicable regulatory requirements could lead to enforcement and sanctions from the states in addition to those from the DEA or otherwise arising under federal law.

For any of our products or product candidates classified as controlled substances, we and our suppliers, manufacturers, contractors, customers and distributors are required to obtain and maintain applicable registrations from state, federal and foreign law enforcement and regulatory agencies and comply with state, federal and foreign laws and regulations regarding the manufacture, use, sale, importation, exportation and distribution of controlled substances. There is a risk that DEA regulations may limit the supply of the compounds used in clinical trials for our product candidates, and, in the future, the ability to produce and distribute our products in the volume needed to meet commercial demand. For example, a DEA quota system controls and limits the availability and production of controlled substances in Schedule I or II. Because our products and most of our product candidates are or may be regulated as Schedule II controlled substances, they may be subject to the DEA's production and procurement quota scheme. The DEA establishes annually an aggregate quota for how much of a controlled substance may be produced in total in the United States based on the DEA's estimate of the quantity needed to meet legitimate scientific and medicinal needs. Manufacturers of Schedule I and II controlled substances are required to apply for quotas on an annual basis. If we or our contract manufacturers or suppliers do not obtain a sufficient quota from the DEA, we may not be able to obtain sufficient quantities of these controlled substances in order to complete our clinical trials or meet commercial demand for any of our products or product candidates classified under Schedule II.

Regulations associated with controlled substances govern manufacturing, labeling, packaging, testing, dispensing, production and procurement quotas, recordkeeping, reporting, handling, shipment and disposal. These regulations increase the personnel needs and the expense associated with development and commercialization of product candidates including controlled substances. The DEA, and some states, conduct periodic inspections of registered establishments that handle controlled substances. Failure to obtain and maintain required registrations or comply with any applicable regulations could delay or preclude us from developing and commercializing our product candidates containing controlled substances and subject us to enforcement action. The DEA may seek civil penalties, refuse to renew necessary registrations or initiate proceedings to revoke those registrations. In some circumstances, violations could lead to criminal proceedings. Because of their restrictive nature, these regulations could limit commercialization of any of our products or product candidates that are classified as controlled substances.

Our products and product candidates may be associated with serious adverse events, undesirable side effects or have other properties that could halt their clinical development, prevent their regulatory approval, limit their commercial potential or result in significant negative consequences.

Adverse events or other undesirable side effects caused by our products or product candidates could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approvals by the FDA or other comparable foreign regulatory authorities.

During the conduct of clinical trials, patients report changes in their health, including illnesses, injuries, and discomforts, to their study doctor. Often, it is not possible to determine whether or not the product candidate being studied caused these conditions. It is possible that as we test our product candidates in larger, longer and more extensive clinical trials, or as use of these product candidates becomes more widespread if they receive regulatory approval, illnesses, injuries, discomforts and other adverse events that were observed in previous trials, as well as conditions that did not occur or went undetected in previous trials, will be reported by patients. Many times, side effects are only detectable after investigational products are tested in large-scale clinical trials or, in some cases, after they are made available to patients on a commercial scale following approval.

If any serious adverse events occur, clinical trials or commercial distribution of any product candidates or products we develop could be suspended or terminated, and our business could be seriously harmed. Treatment-related side effects could also affect patient recruitment and the ability of enrolled patients to complete the trial or result in potential liability claims. Regulatory authorities could order us to cease further development of, deny approval of, and/or require us to cease selling our products or product candidates, if approved, for any or all targeted indications. If we are required to delay, suspend or terminate any clinical trial or commercialization efforts, the commercial prospects of our products or product candidates may be harmed, and our ability to generate product revenues from them or other product candidates that we develop may be delayed or eliminated. Additionally, if one or more of our product candidates receives marketing approval and we or others later identify undesirable side effects or adverse events caused by such products, a number of potentially significant negative consequences could result, including but not limited to:

- regulatory authorities may suspend, limit or withdraw approvals of such product, or seek an injunction against its manufacture or distribution;
- regulatory authorities may require additional warnings on the label, including “boxed” warnings, or issue safety alerts, Dear Healthcare Provider letters, press releases or other communications containing warnings or other safety information about the product;
- we may be required to change the way the product is administered or conduct additional clinical trials or post-approval studies;
- we may be required to create a risk evaluation and mitigation strategy, or REMS, which could include a medication guide outlining the risks of such side effects for distribution to patients;
- we may be subject to fines, injunctions or the imposition of criminal penalties;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of our products or any of our product candidates, if approved, and could seriously harm our business.

We may expend our limited resources to pursue a particular product candidate or indication and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and management resources, we focus on research programs and product candidates that we identify for specific indications. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial drugs or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

Social issues around the abuse of opioids and stimulants, including law enforcement concerns over diversion and regulatory efforts to combat abuse, could decrease the potential market for AZSTARYS, APADAZ or any of our other applicable product candidates.

Media stories regarding prescription drug abuse and the diversion of opioids, stimulants and other controlled substances are commonplace. Law enforcement and regulatory agencies may apply policies that seek to limit the availability of opioids and stimulants. Such efforts may inhibit the ability to commercialize AZSTARYS under the KP415 License Agreement, APADAZ under the APADAZ License Agreement or to commercialize any of our other applicable product candidates. Aggressive enforcement and unfavorable publicity regarding, for example, the use or misuse of hydrocodone or other opioid drugs and stimulants, the limitations of abuse-deterrent formulations, public inquiries and investigations into prescription drug abuse, litigation or regulatory activity, sales, marketing, distribution or storage of our products could harm our reputation. Such negative publicity could reduce the potential size of the market for AZSTARYS, APADAZ or any of our other applicable product candidates and decrease the revenue we are able to generate from their sale, if approved. Similarly, to the extent prescription drug abuse becomes a less prevalent or less urgent public health issue, regulators and third-party payors may not be willing to pay a premium for formulations with improved attributes of opioids or stimulants.

Additionally, efforts by the FDA and other regulatory bodies to combat abuse of opioids and stimulants may negatively impact the market for AZSTARYS, APADAZ and any of our other applicable product candidates. For example, in April 2014, the FDA approved class-wide labeling changes to the indications for use of all approved ER/LA opioids, so that ER/LA opioids will be indicated only for the management of pain severe enough to require daily, around-the-clock, long-term opioid treatment and for which alternative treatment options are inadequate. These changes have reduced the number of prescriptions for opioids written by physicians and negatively impact the potential market for APADAZ or our other applicable product candidates. The FDA also held a public meeting in October 2014, on the development and regulation of abuse-deterrent formulations of opioid medications. Further, the Centers for Disease Control and Prevention previously issued draft guidelines for the prescribing of opioids for chronic pain, providing recommendations for primary care providers prescribing opioids for chronic pain on when to initiate or continue opioids, opioid selection and discontinuation, and the assessment of the risk and addressing harms of opioid use, among other areas. It is possible that FDA, or other regulatory bodies, will announce new regulatory initiatives at any time that may increase the regulatory burden or decrease the commercial opportunity for AZSTARYS, APADAZ or any of our other applicable product candidates.

Risks Related to Our Financial Position and Capital Needs

Any failure to maintain effective internal control over financial reporting could harm us.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. 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 in accordance with U.S. generally accepted accounting principles. If our management is unable to conclude that we have effective internal control over financial reporting, or to certify the effectiveness of such controls, or if material weaknesses in our internal control over financial reporting are identified in the future, we could be subject to regulatory scrutiny and a loss of public confidence, which could have a material adverse effect on our business and our stock price. In addition, if we do not maintain adequate financial and management personnel, processes and controls, we may not be able to manage our business effectively or accurately report our financial performance on a timely basis, which could cause a decline in our common stock price and adversely affect our results of operations and financial condition.

We have incurred significant recurring negative net operating cash flows. We expect to incur minimal positive net operating cash flows or negative net operating cash flows over the next several years and may never achieve or maintain profitability.

We have historically had significant negative net operating cash flows since inception. For the years ended December 31, 2021 and 2020 net cash provided by (used in) operations was $10.4 million and ($1.9) million, respectively. We have financed our operations through December 31, 2021 with funds raised in private placements of redeemable convertible preferred stock, in the issuance of convertible promissory notes and term debt, our initial public offering and other public and private offerings of our common stock, as well as through revenue received under the KP415 License Agreement, the Corium Consulting Agreement and other consulting arrangements.

We have devoted substantially all of our financial resources and efforts to research and development, including preclinical studies and clinical trials. We are in various stages of development of our product candidates, and we have only completed development of, and received regulatory approval for, two products, AZSTARYS and APADAZ. We expect to continue to incur significant expenses and operating losses over the next several years and our net losses may fluctuate significantly from quarter to quarter and year to year as we:

- continue our ongoing preclinical studies, clinical trials and our product development activities for our pipeline of product candidates;
- seek regulatory approvals for product candidates that successfully complete clinical trials;
- continue research and preclinical development and initiate clinical trials of our product candidates;
- seek to discover and develop additional product candidates either internally or in partnership with other pharmaceutical companies;
- adapt our regulatory compliance efforts to incorporate requirements applicable to marketed products;
- maintain, expand and protect our intellectual property portfolio;
- incur additional legal, accounting and other expenses in operating as a public company; and
- add operational systems and personnel, if needed, to support any future commercialization efforts.

To become and remain profitable, we must succeed in developing and eventually commercializing prodrugs that generate significant revenue. This will require us to be successful in a range of challenging activities, including completing preclinical studies and clinical trials and obtaining regulatory approval of our product candidates, and manufacturing, marketing and selling, whether ourselves or through a license with a third party, any of our product candidates for which we may obtain regulatory approval, as well as discovering and developing additional product candidates. We are in various stages of these activities for our product candidates and we cannot guarantee that any strategy we adopt will be successful. For instance, in September 2019, we entered into the KP415 License Agreement with Commave pursuant to which we granted an exclusive, worldwide license to Commave to develop, manufacture and commercialize AZSTARYS and KP484 worldwide. We cannot guarantee that Commave will be able to successfully manufacture or commercialize AZSTARYS, or develop, manufacture or commercialize KP484, if approved, or that we will ever receive any future payments under the KP415 License Agreement. In addition, in October 2018, we entered into the APADAZ License Agreement with KVK pursuant to which we granted an exclusive license to KVK to commercialize APADAZ in the United States. We cannot guarantee that KVK will be able to successfully commercialize APADAZ or that we will ever receive any payments under the APADAZ License Agreement from commercial sales of APADAZ. We may never succeed in commercialization activities and, even if we do, may never generate revenue that is significant enough to achieve profitability.

In March 2020, the World Health Organization declared the outbreak of COVID-19 a global pandemic. This pandemic is causing major disruptions to businesses and markets worldwide as the virus spreads. We cannot predict what the long-term effects of this pandemic and the resulting economic disruptions may have on our liquidity and results of operations. The extent of the effect of the COVID-19 pandemic on our liquidity and results of operations will depend on a number future developments, including the duration, spread and intensity of the pandemic, and governmental, regulatory and private sector responses, all of which are uncertain and difficult to predict. The COVID-19 pandemic may make it more difficult for us to enroll patients in any future clinical trials or cause delays in the regulatory approval of our product candidates. A portion of our projected revenue is based upon the achievement of milestones in the KP415 License Agreement associated with regulatory matters that may be impacted by the COVID-19 pandemic. As a result, we cannot predict what, if any, impact that the COVID-19 pandemic may have on our ability to achieve these milestones. If the pandemic continues to be a severe worldwide crisis, it could have a material adverse effect on our business, results of operations, financial condition, and cash flows.

Because of the numerous risks and uncertainties associated with prodrug development, we are unable to accurately predict the timing or amount of expenses or when, or if, we will be able to achieve profitability. If we are required by regulatory authorities to perform studies in addition to those currently expected, or if there are any delays in the initiation and completion of our clinical trials or the development of any of our product candidates, our expenses could increase.

Even if we 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 depress our value and could impair our ability to raise capital, expand our business, maintain our research and development efforts, obtain product approvals, diversify our product offerings or continue our operations. A decline in our value could also cause you to lose all or part of your investment.

Identifying potential product candidates and conducting preclinical studies and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and we may not generate the necessary data or results required to obtain regulatory approval for our product candidates or claims necessary to make such candidates profitable and achieve product sales. In addition, AZSTARYS, APADAZ or any of our product candidates, if approved, may not achieve commercial success. Our commercial revenue will be derived from sales of prodrug products. We cannot guarantee that Commave will be able to successfully commercialize AZSTARYS or any of the product candidates subject to the KP415 License Agreement, even if approved, that KVK will be able to successfully commercialize APADAZ or that we will ever receive any payments under the KP415 License Agreement from the commercial sales of AZSTARYS or any future payments under the KP415 License Agreement or payment under the APADAZ License Agreement from commercial sales of APADAZ. Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us on acceptable terms, or at all. To the extent that we raise additional capital through the sale of equity or debt securities, the terms of those securities or debt may restrict our ability to operate. Any future debt financing and equity financing, if available, may involve agreements that include, covenants limiting and restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures, entering into profit-sharing or other arrangements or declaring dividends. If we raise additional funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, we may be required to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or to grant licenses on terms that may not be favorable to us. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. If we are unable to raise capital when needed or on attractive terms, we could be forced to delay, reduce or altogether cease our research and development programs or future commercialization efforts.

We may need additional funding to pursue our business objectives. If we are unable to raise capital when needed, we could be forced to delay, reduce or altogether cease our prodrug development programs or commercialization efforts or cease operations altogether.

We expect that our only sources of revenues will be through payments arising from our license agreements with Commave and KVK, or through the Corium Consulting Agreement or other potential consulting arrangements and any other future arrangements related to one of our other product candidates. We cannot guarantee that we will be able to generate sufficient proceeds from the KP415 License Agreement, the APADAZ License Agreement, the Corium Consulting Agreement or other consulting arrangements, or be successful in completing other transactions, that will fully fund our operating expenses. Further, the economic uncertainty surrounding the COVID-19 pandemic may dramatically reduce our ability to secure debt or equity financing necessary to support our operations. If we are delayed in obtaining additional funding or are unable to complete a strategic transaction, we may discontinue our development activities on our product candidates or discontinue our operations. Our future capital requirements will depend on many factors, including:

- the progress and results of our preclinical studies, clinical trials, chemistry, manufacturing and controls, or CMC, and other product development and commercialization activities;
- the scope, progress, results and costs of preclinical development, laboratory testing and clinical trials for our product candidates;
- the ability to obtain differentiating claims in the labels for our product candidates;
- the number and development requirements of other product candidates that we may pursue;
- the costs, timing and outcome of regulatory review of our product candidates;
- the efforts necessary to institute post-approval regulatory compliance requirements;
- the costs and timing of future commercialization activities, including product manufacturing, marketing, sales and distribution, for any of our product candidates for which we receive marketing approval;
- the commercial revenue received from commercial sales of AZSTARYS under our KP415 License Agreement, APADAZ under our APADAZ License Agreement, or any of our product candidates subject to the terms of the KP415 License agreement, or sales of our product candidates for which we receive marketing approval in the future, which may be affected by market conditions, including obtaining coverage and adequate reimbursement of AZSTARYS, APADAZ, or any of our product candidates, from third-party payors, including government programs and managed care organizations, and competition within the therapeutic class to which AZSTARYS, APADAZ, or any our product candidates are assigned;
- the success of our partner, Commave, in commercializing AZSTARYS, or the successful development of other Additional Products or other Licensed Products in accordance with the terms of the KP415 License Agreement;
- the costs and timing of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending any intellectual property-related claims; and
- the extent to which we acquire or in-license other product candidates and technologies.

Our business has been, and may in the future be, adversely affected by the effects of health epidemics, including the COVID-19 pandemic, in regions where we or third parties on which we rely have clinical trial sites or other business operations In addition, if COVID-19 continues to be a worldwide pandemic, it could materially affect our operations.

Our business has been, and may continue to be, adversely affected by health epidemics, including the COVID-19 pandemic, in regions where we have significant manufacturing facilities, concentrations of clinical trial sites, or other business operations.

As a result of the COVID-19 pandemic, we have implemented limitations on our operations, including a work-from-home policy, and could face further limitations in our operations in the future. There is a risk that countries or regions may be less effective at containing COVID-19 than others, in which case the risks described herein could be elevated significantly.

In particular, our future clinical trials may be affected by the COVID-19 pandemic or other future health epidemics. Site initiation, patient enrollment, distribution of drug product candidates, study monitoring, and data collection may be delayed due to changes in hospital policies, local regulations, and/or prioritization of hospital resources toward the COVID-19 pandemic or other future health epidemics. If COVID-19 continues to spread or there are similar health epidemics in the future, some patients and clinical investigators may not be able to comply with clinical trial protocols. For example, quarantines may impede patient movement, affect sponsor access to study sites, or interrupt healthcare services, and we may be required to delay patient enrollment or unable to obtain patient data as a result.

In addition, third party manufacturing of our products and product candidates and suppliers of the materials used in the production of our product candidates may be impacted by restrictions resulting from the COVID-19 pandemic or other future health epidemics which may disrupt our supply chain or limit our ability to manufacture drug product candidates for our clinical trials.

The ultimate impact of the COVID-19 pandemic or a similar future health epidemic is highly uncertain and subject to change. We do not yet know the full extent of potential delays or impacts on our business, our clinical trials, healthcare systems or the global economy as a whole. However, these effects could have a material impact on our operations, and we will continue to monitor the COVID-19 situation closely.

Our operating history may make it difficult for you to evaluate the success of our business to date and to assess our future viability.

We may encounter unforeseen expenses, difficulties, complications, delays and other known or unknown factors in achieving our business objectives. We will need to transition at some point from a company with a research and development focus to a company capable of supporting commercial activities. We may not be successful in such a transition.

We expect our financial condition and operating results to continue to fluctuate significantly from quarter to quarter and year to year due to a variety of factors, many of which are beyond our control. Accordingly, you should not rely upon the results of any quarterly or annual periods as indications of future operating performance.

Risks Related to Our Dependence on Third Parties

We rely on and expect to continue to rely on third parties to conduct our clinical trials for our product candidates, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials.

We have engaged and expect to continue to engage CROs for our planned clinical trials of our product candidates. We rely on and expect to continue to rely on CROs, as well as other third parties, such as clinical data management organizations, medical institutions and clinical investigators, to conduct those clinical trials. Agreements with such third parties might terminate for a variety of reasons, including a failure to perform by the third parties. If we need to enter into alternative arrangements, our drug development activities would be delayed.

Our reliance on these third parties for research and development activities reduces our control over these activities but does not relieve us of our responsibilities. For example, we remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA requires us to comply with regulatory standards, commonly referred to as good clinical practices, or GCPs, for conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. Regulatory authorities enforce these GCPs through periodic inspections of trial sponsors, investigators and trial sites. We also are required to register specified ongoing clinical trials and post the results of completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within specified timeframes. In addition, we must conduct our clinical trials with product produced under cGMP requirements. Failure to comply with these regulations may require us to repeat preclinical studies and clinical trials, which would delay the regulatory approval process. Failure to comply with the applicable requirements related to clinical investigations by us, our CROs or clinical trial sites can also result in clinical holds and termination of clinical trials, debarment, FDA refusal to approve applications based on the clinical data, warning letters, withdrawal of marketing approval if the product has already been approved, fines and other monetary penalties, delays, adverse publicity and civil and criminal sanctions, among other consequences.

Furthermore, these third parties may also have relationships with other entities, some of which may be our competitors. If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct our clinical trials in accordance with regulatory requirements or our stated protocols, we will not be able to obtain, or may be delayed in obtaining, marketing approvals for our product candidates and will not be able to, or may be delayed in our efforts to, successfully commercialize our product candidates.

In addition, investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and may receive cash or equity compensation in connection with such services. If these relationships and any related compensation result in perceived or actual conflicts of interest, or the FDA concludes that the financial relationship may have affected the interpretation of the study, the integrity of the data generated at the applicable clinical trial site may be questioned and the utility of the clinical trial itself may be jeopardized, which could result in the delay or rejection of any NDA we submit by the FDA. Any such delay or rejection could prevent us from commercializing our product candidates. Further, our arrangements with investigators are also subject to scrutiny under other health care regulatory laws, such as the Anti-Kickback Statute.

We also rely on and expect to continue to rely on other third parties to store and distribute product supplies for our clinical trials. Any performance failure on the part of our distributors could delay clinical development or marketing approval of our product candidates or commercialization of our products, producing additional losses and depriving us of potential product revenue.

If the third parties with whom we contract do not successfully carry out their contractual duties or obligations or meet expected deadlines 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, we may need to conduct additional trials, and we may not be able to obtain regulatory approval for or successfully commercialize our product candidates. As a result, the commercial prospects for our product candidates would be harmed, our costs could increase and our ability to generate revenue could be delayed. To the extent we are unable to successfully identify and manage the performance of third-party service providers in the future, our business may be adversely affected.

We contract with third parties for the manufacture of our partnered products and product candidates that utilize benzhydrocodone and SDX as the API used in our clinical trials and with a sole source supplier for the manufacture of bulk quantities of benzhydrocodone and SDX used in the partnered products and product candidates that utilize these moieties as the API and we expect to continue to do so. This reliance on third-party manufacturers increases the risk that we will not have sufficient quantities of benzhydrocodone and SDX, or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.

We do not have any manufacturing facilities. We procure the bulk drug substances for AZSTARYS, KP484, APADAZ, KP879 and KP1077 from sole-source, third-party manufacturers and the partnered products and product candidates that utilize these moieties as the API used in our clinical trials from other third parties. We anticipate we will continue to do so for the foreseeable future. We also expect to continue to rely on third parties as we proceed with preclinical and clinical testing of our product candidates, as well as for commercial manufacture of AZSTARYS, APADAZ, or any of our product candidates should such candidates receive marketing approval. This reliance on third parties increases the risk that we will not have sufficient quantities of benzhydrocodone, SDX, other bulk drug substances or our partnered product or product candidates, or such quantities at an acceptable cost or quality, which could delay, prevent or impair our ability to timely conduct our clinical trials or our other development or commercialization efforts.

We may be unable to establish any future agreements with third-party manufacturers or to do so on acceptable terms. Even if we are able to maintain our existing third-party relationships or establish any such agreements with other third-party manufacturers, reliance on third-party manufacturers entails additional risks, including:

- reliance on the third party for FDA and DEA regulatory compliance and quality assurance;
- the possible misappropriation of our proprietary information, including our trade secrets and know-how;
- disruption and costs associated with changing suppliers, including additional regulatory filings;
- the possible breach, termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us;
- a delay or inability to procure or expand sufficient manufacturing capacity;
- manufacturing and product quality issues related to scale-up of manufacturing;
- costs and validation of new equipment and facilities required for scale-up;
- the inability to negotiate manufacturing agreements with third parties under commercially reasonable terms;
- termination or nonrenewal of manufacturing agreements with third parties in a manner or at a time that is costly or damaging to us;
- the reliance on a limited number of sources, and in some cases, single sources for product components, such that if we are unable to secure a sufficient supply of these product components, we will be unable to manufacture and sell our product candidates in a timely fashion, in sufficient quantities or under acceptable terms; and
- carrier disruptions or increased costs that are beyond our control.

Any of these events could lead to clinical trial delays, failure to obtain regulatory approval or impact our ability to successfully commercialize our products, if approved. Some of these events could be the basis for FDA action, including injunction, recall, seizure or total or partial suspension of production.

The facilities used by our contract manufacturers to manufacture AZSTARYS, APADAZ, and any of our product candidates are subject to review by the FDA pursuant to inspections that will be conducted after we submit our marketing application to the FDA, and such inspections could result in findings that lead to failure to obtain FDA approval of such marketing applications.

We do not, other than through our contractual arrangements, control the manufacturing process of AZSTARYS, APADAZ, or any of our other product candidates, and we are completely dependent on, our contract manufacturing partners for compliance with cGMP requirements and for manufacture of both active drug substances and finished drug products. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or other regulatory authorities, we will not be able to secure and maintain regulatory approval of our marketing applications for the use of their manufacturing facilities for our products. In addition, other than through our contractual agreements, we have no control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacturing of AZSTARYS, APADAZ or any of our other product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain marketing approval for or market AZSTARYS, APADAZ, or any of our other product candidates, if approved.

Further, for AZSTARYS, APADAZ and any of our product candidates, if approved, our suppliers will be subject to regulatory requirements, covering manufacturing, testing, quality control and record keeping relating to AZSTARYS, APADAZ or any of our product candidates, if approved, and subject to ongoing inspections by the regulatory agencies. Failure by any of our suppliers to comply with applicable regulations may result in long delays and interruptions to our manufacturing capacity while we seek to secure another supplier that meets all regulatory requirements, as well as market disruption related to any necessary recalls or other corrective actions.

Third-party manufacturers may not be able to comply with cGMP regulations or similar regulatory requirements outside the United States. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including warning letters, clinical holds or termination of clinical trials, fines, injunctions, restitution, disgorgement, civil penalties, delays, suspension or withdrawal of approvals or other permits, FDA refusal to approve pending applications, product detentions, FDA or DEA consent decrees placing significant restrictions on or suspending manufacturing and distribution operations, debarment, refusal to allow import or export, product detentions, adverse publicity, dear-health-care-provider letters or other warnings, license revocation, seizures or recalls of product candidates, operating restrictions, refusal of government contracts or future orders under existing contracts and civil and criminal liability, including False Claims Act liability, exclusion from participation in federal health care programs, and corporate integrity agreements among other consequences, any of which could significantly and adversely affect supplies of our prodrugs.

Our product candidates and any prodrugs that we may develop may compete with other product candidates and drugs for access to manufacturing facilities, and we may be unable to obtain access to these facilities on favorable terms.

There are a limited number of manufacturers that operate under cGMP regulations and that might be capable of manufacturing for us. Any performance failure on the part of our existing or future manufacturers could delay clinical development or marketing approval. We do not currently have arrangements in place for redundant supply or a second source for AZSTARYS, KP484, KP879 or KP1077 bulk drug substance. If our current contract manufacturer for AZSTARYS, KP484, KP879 or KP1077 bulk drug substance cannot perform as agreed, we may be required to replace such manufacturer and we may incur added costs and delays in identifying and qualifying any such replacement. Any performance failure or significant delay could negatively affect our business, results of operations and financial condition.

We have entered into collaborations with Commave, to develop, manufacture and commercialize AZSTARYS and KP484 worldwide, and KVK, for the commercialization of APADAZ in the United States. In addition, we may seek collaborations with third parties for the development or commercialization of our other product candidates, or in other territories. If those collaborations are not successful, we may not be able to capitalize on the market potential of AZSTARYS, APADAZ, or any of our other product candidates, if approved.

We entered into the KP415 License Agreement with Commave pursuant to which we granted an exclusive, worldwide license to Commave to develop, manufacture and commercialize AZSTARYS and KP484. We cannot guarantee that the K415 License Agreement with Commave will be successful or that we will receive any future payments under the KP415 License Agreement. For instance, Commave has the option to terminate the KP415 License Agreement, in its entirety or on a product-by-product and country-by-country basis, at their convenience either (i) prior to the first regulatory approval of a product upon sixty days prior written notice or (ii) subsequent to the first regulatory approval of a product upon one hundred twenty days prior written notice. Further, even if Commave does not terminate the KP415 License Agreement, we cannot guarantee that we will receive any additional milestone or royalty payments under the KP415 License Agreement. In addition, under the KP415 License Agreement, we have limited control over the amount and timing of resources that Commave will dedicate to the development, manufacturing or commercialization of AZSTARYS and KP484, and we may not always agree with Commave's efforts. Our ability to generate revenue under the KP415 License Agreement will depend, in part, on Commave's ability to successfully perform the functions assigned to it under the KP415 License Agreement.

In addition, we have entered into the APADAZ License Agreement with KVK pursuant to which we granted an exclusive license to KVK to commercialize APADAZ in the United States. We cannot guarantee that our collaboration with KVK will be successful or that we will ever receive any payments under the APADAZ License Agreement. For instance, if the Initial Adoption Milestone under the APADAZ License Agreement is not achieved, KVK may terminate the APADAZ License Agreement without making any payments to us. Further, even if the Initial Adoption Milestone under the APADAZ License Agreement is achieved, we cannot guarantee that we will receive any additional milestone or royalty payments under the APADAZ License Agreement. Further, under the APADAZ License Agreement, we have limited control over the amount and timing of resources that KVK will dedicate to the commercialization of APADAZ, and we may not always agree with KVK's commercialization efforts. Our ability to generate revenue under the APADAZ License Agreement will depend on KVK's ability to successfully perform the functions assigned to it under the APADAZ License Agreement. The commercialization strategy under the APADAZ License Agreement is novel and untested, and, even if successful we expect that the pricing for any sales of APADAZ will be at or near the prices of currently available generic equivalent drugs. As a result, even if KVK does successfully perform its functions under the APADAZ License Agreement, we cannot guarantee that there will be sufficient market demand for APADAZ for us to receive any revenue under the APADAZ License Agreement.

We may also seek additional third-party collaborators for the commercialization of APADAZ outside of the United States or for the development or commercialization of any of our other product candidates, which are not subject to the KP415 License Agreement, or those that are subject to the KP415 License Agreement but the option is not exercised by Commave. In such cases, our likely collaborators would include large and mid-size pharmaceutical companies, regional, national and international pharmaceutical companies and biotechnology companies. If we do enter into any such collaboration arrangements with any third parties, we will likely have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of AZSTARYS or APADAZ outside of the United States or any of our other product candidates. Our ability to generate revenue from these arrangements will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements.

Our collaborations with Commave and KVK, or combined, the Collaborators, pose the following risks to us:

- the Collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- the Collaborators may not perform their obligations as expected;
- the Collaborators may not pursue commercialization of AZSTARYS, APADAZ, or any of our product candidates covered under the KP415 License Agreement, if approved, or may elect not to continue or renew commercialization programs based on post-approval clinical trial results, changes in a Collaborator's strategic focus or available funding, or external factors, such as an acquisition, that divert resources or create competing priorities;
- the Collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with AZSTARYS, APADAZ, or any of our other products covered under the KP415 License Agreement, as applicable, if the Collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- AZSTARYS, APADAZ, and any of our other products covered under the KP415 License Agreement may be viewed by the Collaborators as competitive with their own product candidates or products, which may cause the Collaborators to cease to devote resources to the commercialization of AZSTARYS, APADAZ, or any of our other products covered under the KP415 License Agreement, if approved;
- the Collaborators may not commit sufficient resources to the development, marketing and distribution of AZSTARYS, APADAZ, and any of our other products covered under the KP415 License Agreement, as applicable;
- disagreements with the Collaborators, including disagreements over proprietary rights, contract interpretation or the preferred course of development or commercialization, might cause delays or termination of the development or commercialization of AZSTARYS, APADAZ, or any of our other products covered under the KP415 License Agreement, as applicable, might lead to additional responsibilities for us with respect to AZSTARYS, APADAZ, or any of our other products covered under the KP415 License Agreement, or might result in litigation or arbitration, any of which would be time-consuming and expensive;
- the Collaborators may not properly maintain or defend our or their intellectual property rights or may use our or their proprietary information in such a way as to invite litigation that could jeopardize or invalidate such intellectual property or proprietary information or expose us to potential litigation;
- the Collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability; and
- the license agreements may be terminated by the Collaborators under specified circumstances and, if terminated, we could be required to raise additional capital to pursue further development or commercialization of AZSTARYS, APADAZ, or any of our other products covered under the KP415 License Agreement.

If we enter into any future collaborations we will face similar risks with any future collaborators as well.

The KP415 License Agreement, the APADAZ License Agreement, and any other licensing or collaboration agreements we may enter into may not lead to commercialization of AZSTARYS, commercialization of APADAZ, or development of KP484, KP879 or any of our other product candidates in the most efficient manner or at all. If Commave or KVK or a future collaborator of ours were to be involved in a business combination, the continued pursuit and emphasis on our drug development or commercialization program could be delayed, diminished or terminated.

If we are not able to establish collaborations for our product candidates, we may have to alter our development and commercialization plans.

Our prodrug development programs and the potential commercialization of our product candidates, if approved, will require substantial additional capital. For our product candidates, which are not subject to the terms of the KP415 License Agreement or the APADAZ License Agreement, we may need to collaborate with pharmaceutical and biotechnology companies for the development and potential commercialization of those product candidates.

We face significant competition in seeking appropriate collaborators. Whether we 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. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA or similar regulatory authorities outside the United States, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products, the existence of uncertainty with respect to our ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of the challenge, and industry and market conditions generally.

The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us for our product candidate.

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 may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of product candidates, reduce or delay one or more of our development programs, delay potential commercialization of our product candidates or reduce the scope of any sales or marketing activities of our product candidates, or increase our expenditures and undertake development or commercialization activities at our own expense of our product candidate. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop our product candidates or bring our product candidates to market and generate product revenue.

Provisions in our agreements with Aquestive and Commave may inhibit our ability to enter into future collaborations with third parties.

We are party to a termination agreement with Aquestive Therapeutics, or Aquestive, that may limit the value of any sale, license or commercialization of AZSTARYS, KP484, KP879 or KP1077. Under this termination agreement, Aquestive has the right to receive a royalty amount equal to 10% of any value generated by AZSTARYS, KP484, KP879 or KP1077, and any product candidates which contain SDX, including royalty payments on any license of AZSTARYS, KP484, KP879 or KP1077, the sale of AZSTARYS, KP484, KP879 or KP1077 to a third party or the commercialization of AZSTARYS, KP484, KP879 or KP1077. As part of the KP415 License Agreement, we paid Aquestive a royalty equal to 10% of the license upfront payment we received in 2019 and the regulatory milestone and royalty payments we received in 2020 and 2021 from AZSTARYS.

We also granted to Commave a right of first refusal to acquire, license or commercialize any Additional Product Candidate which contains SDX and are intended to treat ADHD or any other CNS disorder, excluding KP922, with such right of first refusal expiring upon the acceptance of a new drug application for such Additional Product Candidate. We also granted Commave a right of first negotiation and a right of first refusal, subject to specified exceptions, for any assignment of our rights under the KP415 License Agreement. We cannot predict if these obligations will limit the value we may receive from any future sale or license of any Additional Product Candidate.

Risks Related to Our Intellectual Property

If we are unable to obtain and maintain trade secret protection or patent protection for our technology, AZSTARYS, APADAZ, or our product candidates, or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize technology and drugs similar or identical to ours, and our ability to successfully commercialize our technology, AZSTARYS, APADAZ, or our product candidates, if approved, may be impaired.

Our success depends in large part on our ability to obtain and maintain trade secret protection of our proprietary LAT platform technology as well as patent protection in the United States and other countries with respect to AZSTARYS, APADAZ, and any of our product candidates. We seek to protect our proprietary position by filing patent applications in the United States and abroad related to our product technology and product candidates. As part of the KP415 License Agreement, Commave obtained from us an exclusive, worldwide license to certain patents that cover AZSTARYS and KP484. In addition, as part of the APADAZ License Agreement, KVK obtained from us an exclusive license to certain patents that cover APADAZ.

The patent prosecution process is expensive and time-consuming, and we may not be able to file and prosecute all necessary or desirable 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 before it is too late to obtain patent protection. We may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the rights to patents, licensed to third parties by us.

Further, we may also not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the rights to patents, licensed from third parties to us. Therefore, any such patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. If such licensors or licensees fail to maintain such patents, or lose rights to those patents, the rights we have in- or out-licensed may be reduced or eliminated.

The patent position of biotechnology and pharmaceutical companies, generally, is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. In addition, the laws of foreign countries may not protect our rights to the same extent as the laws of the United States or visa-versa. For example, European patent law restricts the patentability of methods of treatment of the human body more than United States law. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and utility, or equivalent, patent applications in the United States and other jurisdictions are typically, for example, not published until 18 months after the filing date of such patent applications, or in some cases not at all. Therefore, we cannot know with certainty whether we were the first to make and/or use the inventions claimed in our owned or licensed patents or pending patent applications, or that we were the first to file for patent protection of such inventions. As a result, the issuance, scope, priority, validity, enforceability and commercial value of our patent rights are highly uncertain. Our pending and future patent applications may not result in patents being issued that protect our product candidates, in whole or in part, or which effectively prevent others from commercializing competitive technologies and drugs. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection.

Our patent position is subject to numerous additional risks, including the following:

- we may fail to seek patent protection for inventions that are important to our success;
- our pending patent applications may not result in issued patents;
- we cannot be certain that we are the first to invent the inventions covered by pending patent applications or that we are the first to file such applications and, if we are not, we may be subject to priority disputes or lose rights;
- we may be required to disclaim part or all of the term of certain patents or all of the term of certain patent applications;
- we may not be able to acquire patent term extensions or supplemental certificates of certain patents, domestic or foreign, due to regulatory delays, among others, which may affect the term of enforceability of such patents over time;
- we may file patent applications but have claims restricted or we may not be able to supply sufficient data to support our claims and, as a result, may not obtain the original claims desired or we may receive restricted claims; alternatively, it is possible that we may not receive any patent protection from an application;
- even if our owned and licensed patent applications issue as patents, they may not issue in a form that will provide us with any meaningful protection, and may not be of sufficient scope or strength to provide us with any commercial advantage;
- our competitors may be able to design around our owned or licensed patents by developing similar or alternative technologies or drugs without infringing on our intellectual property rights;
- we could inadvertently abandon a patent or patent application, resulting in the loss of protection of intellectual property rights in a particular country, and we, our collaborators or our patent counsel may take action resulting in a patent or patent application becoming abandoned which may not be able to be reinstated or if reinstated, may suffer patent term adjustments or loss;
- the claims of our issued patents or patent applications when issued may not cover our product candidates;
- no assurance can be given that our patents would be declared by a court or tribunal, domestic or foreign, to be valid or enforceable or that a competitor’s technology or product would be found by a court or tribunal, domestic or foreign, to infringe our patents and our patents or patent applications may be challenged by third parties in patent litigation, domestic or foreign, or in proceedings before the United States Patent and Trademark Office, or the USPTO, or its foreign counterparts, and may ultimately be declared invalid or unenforceable or narrowed in scope;
- there may be prior art of which we are not aware that may affect the validity or enforceability of a patent claim and there may be prior art of which we are aware, but which we do not believe affects the validity or enforceability of a claim, which may, nonetheless, ultimately be found to affect the validity or enforceability of a claim;
- third parties may develop products that have the same or similar effect as our products without infringing our patents;
- third parties may intentionally circumvent our patents by means of alternate designs or processes or file applications or be granted patents that would block or hurt our efforts;
- there may be dominating or intervening patents relevant to our product candidates of which we are not aware;
- obtaining regulatory approval for pharmaceutical products is a lengthy and complex process, and as a result, any patents covering our product candidates may expire before or shortly after such product candidates are approved and commercialized;
- the patent and patent enforcement laws of some foreign jurisdictions do not protect intellectual property rights to the same extent as laws in the United States, and many companies have encountered significant difficulties in protecting and defending such rights in foreign jurisdictions; and
- we may not develop additional proprietary technologies that are patentable.

Any of these factors could hurt our ability to gain full patent protection for our products. Registered trademarks and trademark applications in the United States and other countries are subject to similar risks as described above for patents and patent applications, in addition to the risks described below.

Further, a third party may misappropriate or reverse engineer our proprietary LAT platform technology, which could limit our ability to stop others from using or commercializing similar or identical technology and resultant product candidates, product technology or prodrugs, or limit the duration of the trade secret protection of our proprietary LAT platform technology.

Moreover, we may be subject to a third-party pre-issuance submission of prior art to the USPTO, or become involved in opposition, litigation, nullity, derivation, reexamination, inter partes review, post-grant review or interference proceedings challenging our patent rights or the patent rights of others. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, our patent rights, allow third parties to commercialize our technology or drugs and compete directly with us, without payment to us or result in our inability to manufacture or commercialize drugs without infringing third-party patent rights. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, it could dissuade companies from collaborating with us to seek patent protection or to license, develop or commercialize current or future product candidates.

In addition, the issuance of a patent is not conclusive as to its inventorship, ownership, scope, priority, validity or enforceability, and our owned and licensed patents may be challenged in the courts, patent offices and tribunals in the United States and abroad. Such challenges may result in loss of exclusivity or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar or identical technology and drugs, or limit the duration of the patent protection of our product technology, product candidates and prodrugs.

Changes in patent law in the United States and other jurisdictions could alter or diminish the value of patents in general, thereby impairing our ability to protect our products and technologies.

The standards that the USPTO and patent offices in other countries use to grant patents are not always applied predictably or uniformly and can change. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries could increase the uncertainties and costs, and 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.

In addition, the patent positions of companies in the development and commercialization of pharmaceuticals are particularly uncertain. The United States Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. Depending on future actions by the United States Congress, the United States courts, the USPTO and the relevant law-making bodies in other countries, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. For example, in the 2013 case *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, the United States Supreme Court held that certain claims to DNA molecules are not patentable. While we do not believe that any of the patents owned or licensed by us will be found invalid based on this decision, future decisions by the courts, the United States Congress or the USPTO may impact the value of our patents.

For another example, on September 16, 2011, the Leahy-Smith America Invents Act, or the Leahy-Smith Act, was signed into law. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted in the United States, redefine prior art and may also affect patent litigation. The USPTO recently developed new regulations and procedures to govern administration of the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act, and in particular, the first-to-file provisions, only became effective on March 16, 2013.

The Leahy-Smith Act 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. For instance, the Leahy-Smith Act established the *inter partes* review and post grant review procedures that has lowered the burden of proof for invalidity challenges to issued patents and limited the ability to amend patent claims in response to such challenges. In addition, patent reform legislation may pass in the future that could lead to additional uncertainties and increased costs surrounding the prosecution, enforcement and defense of our owned and licensed patents and/or patent applications.

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

Competitors or other third parties may infringe our patents, trademarks, copyrights or other intellectual property. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time consuming and divert the time and attention of our management and scientific personnel. Our pending patent applications cannot be enforced against third parties practicing the technology claimed in such applications unless and until a patent issues from such applications. Any claims we assert against perceived infringers could provoke these parties to assert counterclaims against us alleging that we infringe their patents, in addition to counterclaims asserting that our patents are invalid or unenforceable, or both. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, non-enablement or insufficient written description. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO or made a misleading statement during prosecution. The outcome following legal assertions of invalidity and unenforceability is unpredictable. In any patent infringement proceeding, there is a risk that a court will decide that a patent of ours is invalid or unenforceable, in whole or in part, and that we do not have the right to stop the other party from using the invention at issue. There is also a risk that, even if the validity of such patents is upheld, the court will construe the patent's claims narrowly or decide that we do not have the right to stop the other party from using the invention at issue on the grounds that our patent claims do not cover the invention, or decide that the other party's use of our patented technology falls under the safe harbor to patent infringement under 35 U.S.C. §271(e)(1). An adverse outcome in a litigation or proceeding involving our patents could limit our ability to assert our patents against those parties or other competitors and may curtail or preclude our ability to exclude third parties from making and selling similar or competitive products and technologies. Any of these occurrences could adversely affect our competitive business position, business prospects and financial condition. Similarly, 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

Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which would be uncertain and could significantly harm our business.

Our commercial success depends upon our ability, and the ability of any collaborators, to develop, manufacture, market and sell our product candidates and use our proprietary technologies without infringing the proprietary rights of third parties. There is considerable intellectual property litigation in the biotechnology and pharmaceutical industries. In particular, we are focused on developing product candidates based on widely used therapeutic agents or drugs, many of which may be protected by proprietary rights of third parties.

Although we seek to develop proprietary prodrug formulations that do not infringe the intellectual property rights of others, we may become party to, or threatened with, future adversarial proceedings or litigation, domestic or foreign, regarding intellectual property rights with respect to our prodrugs or other aspects of our technology, including, for example, interference or derivation proceedings before the USPTO. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future.

If we are found to infringe a third party's intellectual property rights, we could be required to obtain a license from such third party to continue developing and marketing our technology and drugs. However, we may not be able to obtain any required license on commercially reasonable terms, or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. We could be forced, including by court order, to cease commercializing the infringing technology or product. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees if we are found to have willfully infringed a patent. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some or all of our business operations.

Competing products may also be sold in other countries in which our patent coverage might not exist or be as strong. If we lose a foreign patent lawsuit alleging our infringement of a competitor's patent, we could be prevented from marketing our products in one or more foreign countries. As a result, our ability to grow our business and compete in the market may be harmed.

Intellectual property litigation could cause us to spend substantial resources and distract our personnel from their normal responsibilities.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses and could distract our technical and management personnel from their normal responsibilities.

In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could hurt the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could compromise our ability to compete in the marketplace.

We may need to license intellectual property from third parties, and such licenses may not be available or may not be available on commercially reasonable terms.

A third party may hold intellectual property rights, including patent rights, which are important or necessary to the development of our product candidates. It may be necessary for us to use the patented or proprietary technology of third parties to commercialize our product candidates, in which case we would be required to obtain a license from these third parties. Such a license may not be available on commercially reasonable terms, or at all, and we could be forced to accept unfavorable contractual terms. If we are unable to obtain such licenses on commercially reasonable terms, our business could be harmed.

If we or our third-party licensors fail to comply with our obligations in our intellectual property licenses and funding arrangements with third parties, we could lose rights that are important to our business.

We are currently party to license agreements for technologies that we anticipate using in our product development activities. In the future, we may become party to licenses that are important for product development and commercialization. If we or our third-party licensors fail to comply with the obligations under current or future license and funding agreements, our counterparties may have the right to terminate these agreements, we may be forced to terminate these agreement or we may no longer effectively rely on any licenses to us under these agreements, in which event we might not be able to develop, manufacture or market any product or utilize any technology that is covered by these agreements or may face other penalties under the agreements. Such an occurrence could materially and adversely affect the value of a product candidate being developed under any such agreement or could restrict our drug discovery activities. Termination of these agreements or reduction or elimination of our rights under these agreements may result in our having to negotiate new or reinstated agreements with less favorable terms or cause us to lose our rights under these agreements, including our rights to important intellectual property or technology.

The scope of our intellectual property may be reduced or may need to be reduced due to third-party intellectual property claims.

Our competitors may have filed, and may in the future file, patent applications covering technology similar to ours. Any such patent application may have priority over our patent applications, which could further require us to obtain rights to issued patents covering such technologies. If another party has filed a U.S. patent application on inventions similar to ours that claims priority to an application filed prior to March 16, 2013, we may have to participate in an interference proceeding declared by the USPTO to determine priority of invention in the United States. The costs of these proceedings could be substantial, and it is possible that such efforts would be unsuccessful if, unbeknownst to us, the other party had independently arrived at the same or similar invention prior to our own invention, resulting in a loss of our U.S. patent position with respect to such inventions. In addition, changes enacted on March 16, 2013, to the U.S. patent laws under the Leahy-Smith Act resulted in the United States changing from a “first to invent” country to a “first to file” country. As a result, we may lose the ability to obtain a patent if another party files with the USPTO first and could become involved in proceedings before the USPTO to resolve disputes related to inventorship. We may also become involved in similar proceedings in other jurisdictions.

Furthermore, recent changes in U.S. patent law under the Leahy-Smith Act allow for post-issuance challenges to U.S. patents, including ex parte re-examinations, *inter partes* reviews and post-grant reviews. There is significant uncertainty as to how the new laws will be applied. If our U.S. patents are challenged using such procedures, we may not prevail, possibly resulting in altered or diminished claim scope or loss of patent rights altogether. Similarly, some countries, notably Europe, also have post-grant opposition proceedings or nullity proceedings that can result in changes in scope or cancellation of patent claims.

We may be subject to claims by third parties asserting that we or our employees have misappropriated their intellectual property or claiming ownership of what we regard as our own intellectual property.

Many of our employees were previously employed at other biotechnology or pharmaceutical companies. Although we try to ensure that our employees do not use the proprietary information, show-how or know-how of others in their work for us, we may be subject to claims that these employees or we have inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other proprietary information, of any such employee's former employer. For example, in March 2012, we settled litigation regarding similar matters with Shire. We may also in the future be subject to claims that we have caused an employee to breach the terms of his or her non-competition or non-solicitation agreement. Litigation may be necessary to defend against these potential claims.

In addition, while it is our policy to require our employees and contractors who may be involved in the development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who in fact develops intellectual property that we regard as our own. Our and their assignment agreements may not be self-executing or may be breached, and we may be forced to bring claims against third parties, or defend claims they may bring against us, to determine the ownership of what we regard as our intellectual property.

If we fail in prosecuting or defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. A court could prohibit us from using technologies or features that are essential to our products, if such technologies or features are found to incorporate or be derived from the trade secrets or other proprietary information of the former employers. Even if we are successful in prosecuting or defending against such claims, litigation could result in substantial costs and could be a distraction to management. In addition, any litigation or threat thereof may adversely affect our ability to hire employees or contract with independent service providers. Moreover, a loss of key personnel or their work product could hamper or prevent our ability to commercialize our products.

Any trademarks we may obtain may be infringed or successfully challenged, resulting in harm to our business.

We expect to rely on trademarks as one means to distinguish our product candidates that are approved for marketing from the products of our competitors. We have registered trademarks for LAT and KemPharm. In addition, we have solicited and applied for trademarks for the KemPharm logo and several potential trade names and logos for future product candidates. Third parties may oppose or attempt to cancel our trademark applications or trademarks, or otherwise challenge our use of the trademarks. If our trademarks are successfully challenged, we could be forced to rebrand our products, which could result in loss of brand recognition and could require us to devote resources to advertising and marketing new brands. Our competitors may infringe our trademarks and we may not have adequate resources to enforce our trademarks.

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

In addition to seeking patent and trademark protection for our product candidates, we also rely on trade secrets, including unpatented show-how, know-how, technology and other proprietary information, to maintain our competitive position. We seek to protect our trade secrets, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as our employees, corporate collaborators, outside scientific collaborators, contract manufacturers, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets. Further, we may need to share our trade secrets and confidential know-how with future business partners, collaborators, contractors and others located in countries at heightened risk of theft of trade secrets, including through direct intrusion by private parties or actors in other countries, and those affiliated with or controlled by state actors.

Monitoring unauthorized uses and disclosures of our intellectual property, including our trade secrets, is difficult, and we do not know whether the steps we have taken to protect our intellectual property will be effective. In addition, we may not be able to obtain adequate remedies for any such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets.

Moreover, our competitors may independently develop or reverse engineer knowledge, methods, show-how and know-how equivalent to our trade secrets. Competitors could purchase our products and replicate some or all of the competitive advantages we derive from our development efforts for technologies on which we do not have patent protection. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent them, or those to whom they communicate such trade secrets, from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our competitive position would be harmed.

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

Patents are of national or regional effect, and filing, prosecuting and defending patents on all of our products and technologies throughout the world would be prohibitively expensive. As such, our intellectual property rights in some countries outside the United States can be less extensive than those in the United States and we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products or technology and may export otherwise infringing products or technology to territories where we have patent protection, but enforcement rights are not as strong as those in the United States. These products may compete with our products and technologies, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. Further, 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 pharmaceuticals or biologics, 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 other 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 such lawsuits that we initiate and the damages and other remedies awarded, if any, may not be commercially meaningful. Similarly, if our trade secrets are disclosed in another jurisdiction, competitors worldwide could have access to our proprietary information and we may be without satisfactory recourse. Such disclosure could have a material adverse effect on our business. Moreover, our ability to protect and enforce our intellectual property rights may be adversely affected by unforeseen changes in intellectual property laws of other countries. In addition, certain developing countries, including China and India, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In those countries, we and our licensors may have limited remedies if patents are infringed or if we or our licensors are compelled to grant a license to a third party, which could materially diminish the value of those patents. In addition, many countries limit the enforceability of patents against government agencies or government contractors. 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 develop or license.

Our decision to seek approval of our product candidates under the 505(b)(2) NDA pathway, if available, may increase the risk that patent infringement suits are filed against us, which would delay the FDA's approval of such product candidates.

Regarding any NDA that we may submit under the 505(b)(2) NDA pathway, if there are patents that claim the approved drug contained in our product candidates and referenced in our 505(b)(2) NDA, we must certify to the FDA and notify the patent holder that any patents listed for the approved drug in the FDA's Orange Book publication are invalid, unenforceable or will not be infringed by the manufacture, use or sale of our prodrug. If a patent infringement lawsuit is filed against us within 45 days of its receipt of notice of our certification, the FDA is automatically prevented from approving our 505(b)(2) NDA until the earliest of 30 months, expiration of the patent, settlement of the lawsuit or a court decision in the infringement case that is favorable to us, or such shorter or longer period as may be ordered by a court. Such actions are routinely filed by patent owners. Accordingly, we may invest considerable time and expense in the development of our product candidates only to be subject to significant delay and patent litigation before our product candidates may be commercialized. We may not be successful in defending any patent infringement claim. Even if we are found not to infringe, or a plaintiff's patent claims are found invalid or unenforceable, defending any such infringement claim would be expensive and time-consuming, and would delay launch of our product candidates and distract management from their normal responsibilities.

Risks Related to the Commercialization of Our Partnered Products and Product Candidates

If we are unable to establish sales, marketing and distribution capabilities for our product candidates, if approved, we may not be successful in commercializing any approved product candidate in the United States.

We have only a limited sales and marketing infrastructure and have no experience in the sale, marketing or distribution of pharmaceutical products. To achieve commercial success for any product candidate for which we may obtain marketing approval in the United States, we will need to enter into collaborations with one or more parties or establish our own sales and marketing organization. While we entered into the KP415 License Agreement to establish a collaboration for the commercialization of AZSTARYS and any of our product candidates which are subject to such agreement, and we entered into the APADAZ License Agreement to establish a collaboration for the commercialization of APADAZ, we may not choose to enter into a collaboration for any future approved product. Should we decide to establish our own sales, marketing and distribution capabilities, we would encounter a number of risks. For example, recruiting and training a sales force is expensive and time consuming and could delay any product launch. If the commercial launch of a product candidate for which we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, and our investment would be lost if we cannot retain or reposition our sales and marketing personnel.

Factors that may inhibit our efforts to commercialize our product candidates on our own include:

- our inability to recruit, train and retain adequate numbers of effective sales and marketing personnel;
- our inability to access government and commercial health plan formularies or secure preferred coverage and adequate reimbursement levels;
- the inability of sales personnel to obtain access to physicians or achieve adequate numbers of physicians to prescribe any future prodrug products;
- the lack of complementary drugs to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines;
- liability for personnel, including sales personnel, failing to comply with applicable legal requirements; and
- costs associated with maintaining compliance with the FDA's marketing and promotional requirements, including ongoing training and monitoring, as well as unforeseen costs and expenses associated with creating an independent sales and marketing organization.

If we decide not to or are unable to establish our own sales, marketing and distribution capabilities and, instead, enter into arrangements with third parties to perform these services, our product revenue and our profitability, if any, are likely to be lower than if we were to sell, market and distribute any product candidates that we develop ourselves. For instance, under the KP415 License Agreement we are entitled to receive quarterly, tiered royalty payments ranging from a percentage in the high single digits to the mid-twenties of Net Sales (as defined in the KP415 License Agreement) in the United States and a percentage in the low to mid-single digits of Net Sales in each country outside of the U.S., in each case subject to specified reductions under certain conditions as described in the KP415 License Agreement, as well as sales milestones based on specified sales targets. In addition, we may not be successful in entering into arrangements with third parties to sell, market and distribute our product candidates in the future, or may be unable to do so on terms that are favorable to us. Further, under the APADAZ License Agreement, we and KVK will share the quarterly net profits of APADAZ by KVK in the United States at specified tiered percentages, with the portion we receive ranging from 30% to 50% of net profits. As a result, we will be entitled to a smaller portion of the net profits of any sales of APADAZ in the United States than if we had decided to sell, market and distribute APADAZ ourselves. We likely will have little control over such third parties, including Commave and KVK, and any of them may fail to devote the necessary resources and attention to sell and market AZSTARYS, APADAZ, or any of our product candidates, if approved, effectively. Further, we may be liable for conduct of third parties, including Commave and KVK, acting on our behalf, including failure to comply with legal requirements applicable to sales and marketing of our product or product candidates, if approved. If we do not establish sales, marketing and distribution capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing AZSTARYS, APADAZ, or any of our product candidates, if approved.

AZSTARYS, APADAZ, or any of our product candidates that may receive marketing approval, 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.

AZSTARYS, APADAZ, or any of our product candidates that may receive marketing approval, may fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. Despite the fact that APADAZ is now nationally available, we cannot guarantee that it will receive significant, if any, market acceptance in the United States. If AZSTARYS, APADAZ, or any of our product candidates, if approved for commercial sale, do not achieve an adequate level of market acceptance, they may not generate significant product revenue and we may not become profitable. For instance, under the APADAZ License Agreement, we are entitled to milestone and royalty payments only if APADAZ sales in the United States are above specified levels. If APADAZ does not achieve an adequate level of market acceptance, it is unlikely that sales will satisfy these thresholds and we may not be entitled to any payments under the APADAZ License Agreement. Additionally, the commercialization strategy under the APADAZ License Agreement is novel and untested, and, even if successful we expect that the pricing for any sales of APADAZ will be at or near the prices of currently available generic equivalent drugs. Accordingly, we expect that APADAZ will need to achieve broad market acceptance in order for this strategy to be successful. The degree of market acceptance of AZSTARYS, APADAZ, or any of our product candidates if approved for commercial sale, will depend on a number of factors, including:

- the efficacy and potential advantages compared to alternative treatments, including less expensive generic treatments;
- the ability to obtain differentiating claims in the labels for most of our product candidates;
- our ability to offer our prodrug products for sale at competitive prices;
- the clinical indications for which our product candidates are approved;
- the 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 cost of treatment in relation to alternative treatments;
- the steps that prescribers and dispensers must take, since AZSTARYS and APADAZ are, and we expect that most of our product candidates are likely going to be considered controlled substances, as well as the perceived risks based upon their controlled substance status;
- the ability to manufacture our product in sufficient quantities and yields;
- the strength of marketing and distribution support;
- the availability of third-party coverage and adequate reimbursement or willingness of patients to pay out of pocket in the absence of third-party coverage;
- the prevalence and severity of any side effects;
- any potential unfavorable publicity;
- any restrictions on the use, sale or distribution of AZSTARYS, APADAZ, or any of our product candidates, including through REMS; and
- any restrictions on the use of our prodrug products together with other medications.

We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than we do.

Our industry is characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. We will face competition and potential competition from a number of sources, including pharmaceutical and biotechnology companies, specialty pharmaceutical companies, generic drug companies, drug delivery companies and academic and research institutions. Our competitors may develop or market drugs that are more effective, more convenient, more widely used and less costly or have a better safety profile than our products or product candidates and these competitors may also have significantly more resources than us and be more successful than us in manufacturing and marketing their products.

AZSTARYS currently competes against, and, if approved, we intend for KP484 to compete against, currently marketed, branded and generic methylphenidate products for the treatment of ADHD. Some of these currently marketed products include Janssen's CONCERTA, Supernus' QUELBREE, Tris Pharma's QUILLIVANT XR and QUILLICHEW ER, Novartis' RITALIN, FOCALIN and FOCALIN XR, UCB's METADATE CD, Noven's DAYTRANA, Neos Therapeutics' CONTEMPLA XR-ODT, Ironshore Pharmaceuticals, Inc.'s JORNAY PM and Adlon Therapeutics' ADHANSIA XR, in addition to multiple other branded and generic methylphenidate products. In addition, AZSTARYS and, if approved, KP484 will face potential competition from any other methylphenidate products for the treatment of ADHD that are currently in or which may enter into clinical development.

APADAZ competes against currently marketed, branded and generic hydrocodone/APAP products for short-term (no more than 14 days) management of acute pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate. In addition, APADAZ may face potential competition from any other hydrocodone/APAP products for short-term (no more than 14 days) management of acute pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate that are currently in or which may enter into clinical development.

If approved, we intend for KP1077 to compete against Jazz Pharmaceuticals' XYWAV, and potentially with other products that are currently in development for the treatment of IH, including Harmony Biosciences' WAKIX. KP1077 could face potential competition from any products for the treatment of IH that are currently in or which may enter into clinical development.

Currently, there are no approved drugs in the United States for the treatment of SUD. If approved, KP879 will face potential competition from any products for the treatment of SUD that are currently in, or which may enter into, clinical development.

Many of our potential competitors have substantially greater financial, technical and human resources than we do, as well as more experience in the development of product candidates, obtaining FDA and other regulatory approvals of products and the commercialization of those products. Consequently, our competitors may develop products for indications we are pursuing or may pursue in the future, and such competitors' products may be more effective, better tolerated and less costly than our product candidates. Our competitors may also be more successful in manufacturing and marketing their products than we are. We will also face competition in recruiting and retaining qualified personnel and establishing clinical trial sites and patient enrollment in clinical trials.

Our competitors also may obtain FDA or other regulatory approval for their product candidates more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. If the competitor's product were similar to our product candidates, we may be required to seek approval via alternative pathways, such as the ANDA, which is used for the development of generic drug products. We may also be blocked from product marketing by periods of patent protection or regulatory exclusivity.

In addition, our ability to compete may be affected in many cases by insurers or other third-party payors seeking to encourage the use of generic drugs or giving drugs with improved attributes sufficient weight in a comparative clinical cost effectiveness analysis. For some of the indications that we are pursuing, drugs used off-label serve as cheaper alternatives to our product candidates. Their lower prices could result in significant pricing pressure, even if our product candidates are otherwise viewed as a preferable therapy. Additional drugs may become available on a generic basis over the coming years.

Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller and other early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies.

Consequently, our competitors may develop products for the treatment of ADHD, pain or for other indications we may pursue in the future, and such competitors' products may be more effective, better tolerated and less costly than our product candidates. Our competitors may also be more successful in manufacturing and marketing their products than we are. We will also face competition in recruiting and retaining qualified personnel and establishing clinical trial sites and subject enrollment in clinical trials.

We may not be able to obtain either five-year FDA regulatory exclusivity as a new chemical entity or three-year FDA regulatory exclusivity.

The FDA provides periods of regulatory exclusivity following their approval of an NDA, which provide the holder of an approved NDA limited protection from new competition in the marketplace for the innovation represented by its approved drug. Five-year exclusivity precludes approval of 505(b)(2) applications or ANDAs by delaying the submission or approval of the application, while three-year exclusivity precludes the approval of the application. We intend to seek new chemical entity, or NCE, status for any of our prodrug product candidates as appropriate. Five years of exclusivity are available to NCEs following the approval of an NDA by the FDA. An NCE is a drug that contains no active moiety that has been approved by the FDA in any other NDA. If a product is not eligible for the NCE exclusivity, it may be eligible for three years of exclusivity. Three-year exclusivity is available to the holder of an NDA, including a 505(b)(2) NDA, for a particular condition of approval, or change to a marketed product, such as a new formulation for a previously approved product, if one or more new clinical trials, other than bioavailability or bioequivalence trials, were essential to the approval of the application and were conducted or sponsored by the applicant.

There is a risk that the FDA may disagree with any claim that we may make that any of our prodrug product candidates are NCEs and therefore entitled to five-year exclusivity. The FDA may also take the view that the studies that we are conducting are not clinical trials, other than bioavailability and bioequivalence studies, that are essential to approval and therefore do not support three-year exclusivity. Further, to the extent that the basis for exclusivity is not clear, the FDA may determine to defer a decision until it receives an application which necessitates a decision.

If we do obtain either five or three years of exclusivity, such exclusivity will not block all potential competitors from the market. Competitors may be able to obtain approval for similar products with different forms of competitive differentiating mechanisms or may be able to obtain approval for similar products without a competitive differentiating mechanism.

Even if we or our collaborators are able to commercialize AZSTARYS, APADAZ, or any of our product candidates, if approved, they may be subject to unfavorable pricing regulations, third-party coverage and reimbursement policies.

The successful commercialization of AZSTARYS, APADAZ, and any of our product candidates for which marketing approval is obtained will depend, in part, on the extent to which coverage and adequate reimbursement for AZSTARYS, APADAZ, or any of our product candidates for which marketing approval is obtained, will be available from government payor programs at the federal and state levels, including Medicare and Medicaid, private health insurers and managed care plans and other third-party payors. Government authorities and other third-party payors decide which medical products they will pay for and establish reimbursement levels, including co-payments. A trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medical products. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for drugs and products. Coverage and reimbursement may not be available for any product that we commercialize and, even if these are available, the level of reimbursement may not be satisfactory. Inadequate reimbursement levels may adversely affect the demand for, or the price of, AZSTARYS, APADAZ, or any of our product candidates for which we obtain marketing approval. Obtaining and maintaining adequate reimbursement for our prodrug products may be difficult. We may be required to conduct expensive pharmacoeconomic studies to justify coverage and reimbursement or the level of reimbursement relative to other therapies. Moreover, the trend has been for government and commercial health plans and their pharmacy benefit managers to commoditize drug products through therapeutic equivalence determinations, making formulary decisions based on cost. If coverage and adequate reimbursement are not available or reimbursement is available only at limited levels, we may not be able to successfully commercialize AZSTARYS under the KP415 License Agreement, APADAZ under the APADAZ License Agreement, or commercialize any of our product candidates for which marketing approval is obtained.

There may be significant delays in obtaining coverage and reimbursement for newly approved prodrug products, and coverage may be more limited than the indications for which the product is approved by the FDA or similar regulatory authorities outside the United States. Moreover, eligibility for coverage and reimbursement does not imply that a product will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution expenses. Interim reimbursement levels for new prodrug products, 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 product 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 prodrug products 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. Private third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. Except for certain government health care programs, such as the Department of Defense's TRICARE Uniform Formulary, no uniform policy requirement for coverage and reimbursement for drug products exists among third-party payors in the United States. Even state Medicaid programs have their own preferred drug lists that may disadvantage non-preferred brand drugs. Therefore, coverage and reimbursement can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained at all. Our inability to promptly obtain coverage and adequate reimbursement rates from both government-funded and private payors for any approved prodrug products that we develop could significantly harm our operating results, our ability to raise capital needed to commercialize prodrugs and our overall financial condition.

The regulations that govern marketing approvals, pricing, coverage and reimbursement for new drugs vary widely from country to country. Current and future legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. Some countries require approval of the sale price of a product before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenue able to be generated from the sale of the product 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.

There can be no assurance that AZSTARYS, APADAZ, or any of our product candidates, if they are approved for sale in the United States or in other countries, will be considered medically reasonable and necessary for a specific indication, that they will be considered cost-effective by third-party payors, that coverage or an adequate level of reimbursement will be available, or that third-party payors' reimbursement policies will not adversely affect the ability to sell AZSTARYS under the KP415 License Agreement , APADAZ under the APADAZ License Agreement, or our ability to sell any of any of our product candidates profitably if they are approved for sale.

We may be subject to enforcement action if we engage in improper marketing or promotion of our products.

The FDA closely regulates promotional materials and other promotional activities. Even if the FDA initially approves product labeling that includes a description of our improved attribute claims, the FDA may object to our marketing claims and product advertising campaigns. Failure to comply with the FDA's promotional, marketing and advertising laws and regulations could lead to the issuance of warning letters, cyber letters, or untitled letters, adverse publicity, the requirement for dear-health-care-provider letters or other corrective information, fines and other monetary penalties, civil or criminal prosecution, including False Claims Act liability, restrictions on our operations and other operating requirements through consent decrees or corporate integrity agreements, debarment, exclusion from participation in federal health care programs and refusal of government contracts or future orders under existing contracts, among other consequences. Any of these consequences would harm the commercial success of our products.

Further, our promotional materials, statements and training methods must comply with the FDA's prohibition of the promotion of unapproved, or off-label, use. Any regulatory approval that the FDA grants is limited to those specific diseases and indications for which a product is deemed to be safe and effective by FDA. For example, the FDA-approved label for AZSTARYS is limited to the acute treatment of ADHD in patients 6 years of age and older, and the FDA-approved label for APADAZ is limited to the short-term (no more than 14 days) management of acute pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate. Physicians may use our products off-label, as the FDA does not restrict or regulate a physician's independent choice of treatment within the practice of medicine. However, if the FDA determines that our promotional materials, statements or training constitutes promotion of an off-label use, it could request that we modify our promotional materials, statements or training methods or subject us to regulatory or enforcement actions, such as the issuance of an untitled letter, a warning letter, injunction, seizure, civil fine, disgorgement of money, operating restrictions or criminal penalties. We may also be subject to actions by other governmental entities or private parties, such as the False Claims Act, civil whistleblower or "qui tam" actions. It is also possible that other federal, state or foreign enforcement authorities might take action if they consider our promotional or training materials to constitute promotion of an off-label use, which could result in significant fines or penalties under other statutory authorities, such as laws prohibiting false claims for reimbursement. In that event, our reputation could be damaged and adoption of the products could be impaired. In addition, the off-label use of our products may increase the risk of product liability claims. Product liability claims are expensive to defend and could divert our management's attention, result in substantial damage awards against us and harm our reputation.

Product liability lawsuits against us could cause us to incur substantial liabilities and to limit commercialization of AZSTARYS, APADAZ, or any of our product candidates that we may develop.

We face an inherent risk of product liability exposure related to the testing of our product candidates in human clinical trials and will face an even greater risk as AZSTARYS, APADAZ, and any of our product candidates that may be approved in the future, are commercialized. This includes the risk that our products may be misused. For example, AZSTARYS and APADAZ do, and we anticipate that any of our product candidates we may choose to develop in the future, if approved, may carry, a boxed warning regarding lethality if our oral tablets or capsules are prepared for injection and hepatotoxicity, as is commonly done by abusers of opioids. If we cannot successfully defend ourselves against claims that our product candidates or products caused injuries, we will incur substantial liabilities on behalf of ourselves. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for AZSTARYS, APADAZ, and any of our product candidates that we may develop;
- injury to our reputation and significant negative media attention;
- termination of clinical trial sites or entire trial programs;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- significant costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards paid to trial participants or patients;
- product recalls, withdrawals or labeling revisions and marketing or promotional restrictions;
- loss of revenue;
- reduced resources of our management to pursue our business strategy; and
- the inability to successfully commercialize AZSTARYS, APADAZ, or any of our product candidates that might be approved in the future.

We currently hold $10.0 million in product liability insurance coverage in the aggregate, with a per incident limit of $10.0 million, which may not be adequate to cover all liabilities that we may incur. We may need to increase our insurance coverage as we expand our clinical trials or upon commencement of commercialization of any product approved in the future. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

A variety of risks associated with international operations could materially adversely affect our business.

We expect to engage in significant cross-border activities, and we will be subject to risks related to international operations, including:

- different regulatory requirements for maintaining approval of drugs in foreign countries;
- differing payor reimbursement regimes, governmental payors or patient self-pay systems and price controls;
- reduced protection for contractual and intellectual property rights in some countries;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- economic weakness, including inflation, labor shortages, supply chain shortages, or other economic or political uncertainties or instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- workforce uncertainty in countries where labor unrest is more common than in North America;
- tighter restrictions on privacy and the collection and use of patient and clinical trial participant data; and
- business interruptions resulting from geopolitical actions, including war and terrorism, or natural disasters including earthquakes, typhoons, floods and fires.

Risks Related to Regulatory Approval of Our Product Candidates and Other Legal Compliance Matters

Failure to obtain marketing approval in international jurisdictions would prevent AZSTARYS, APADAZ, and any of our other product candidates from being marketed abroad.

In order to market and sell our products in the European Union and any other jurisdictions, we must obtain separate marketing approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain FDA approval. The regulatory approval process outside the United States generally includes all of the risks associated with obtaining FDA approval. In addition, in many countries outside the United States, it is required that the product be approved for reimbursement before the product can be approved for sale in that country. We may not obtain approvals from regulatory authorities outside the United States on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one regulatory authority outside the United States does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. However, failure to obtain approval in one jurisdiction may impact our ability to obtain approval elsewhere. We may not be able to file for marketing approvals and may not receive necessary approvals to commercialize our products in any market.

A variety of risks associated with marketing AZSTARYS and any of our product candidates internationally, if approved, could affect our business.

We may seek regulatory approval for AZSTARYS and any of our product candidates, if approved, outside of the United States and, accordingly, we expect that we will be subject to additional risks related to operating in foreign countries if we obtain the necessary approvals, including:

- differing regulatory requirements in foreign countries;
- the potential for so-called parallel importing, which is what happens when a local seller, faced with high or higher local prices, opts to import goods from a foreign market with low or lower prices rather than buying them locally;
- unexpected changes in tariffs, trade barriers, price and exchange controls and other regulatory requirements;
- economic weakness, including inflation, labor shortages, supply chain shortages, or other economic or political uncertainties or instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign taxes, including withholding of payroll taxes;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- difficulties staffing and managing foreign operations;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- potential liability under the Foreign Corrupt Practices Act of 1977 or comparable foreign regulations;
- challenges enforcing our contractual and intellectual property rights, especially in those foreign countries that do not respect and protect intellectual property rights to the same extent as the United States;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and
- business interruptions resulting from geo-political actions, including war and terrorism, such as the current situation with Ukraine and Russia.

These and other risks associated with our international operations may compromise our ability to achieve or maintain profitability.

AZSTARYS and APADAZ are, and any of our product candidates for which we obtain marketing approval will remain subject to significant post-marketing regulatory requirements and oversight.

AZSTARYS and APADAZ are, and any of our product candidates for which we obtain marketing approval could be, subject to significant post-marketing regulatory requirements and oversight, including the submission of reports to regulatory authorities and surveillance to monitor the safety and efficacy of the product, significant limitations related to use restrictions for specified age groups, warnings, precautions or contraindications, and burdensome post-approval study or risk management requirements.

For example, we are required to conduct pediatric studies related to AZSTARYS to evaluate its safety and effectiveness for the claimed indication in pediatric patients. Under the KP415 License Agreement, Commave will be responsible for these regulatory activities going forward, and we cannot guarantee they will be complied with. In addition, we are required to conduct pediatric studies related to APADAZ to evaluate its safety and effectiveness for the claimed indication in pediatric patients. Under the APADAZ License Agreement, KVK will be responsible for these regulatory activities going forward, and we cannot guarantee they will be complied with.

In addition, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export and recordkeeping for any approved drugs are subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration and listing requirements, payment of substantial annual product and establishment fees, labeling requirements, promotional, marketing and advertising requirements, requirements related to further development, packaging, storage and distribution requirements, cGMP requirements relating to manufacturing, quality control, quality assurance and corresponding maintenance of records and documents, requirements regarding the distribution of samples to physicians and recordkeeping. If there are any modifications to the drug, including changes in indications, labeling, manufacturing processes or facilities, or new safety issues arise, a new or supplemental NDA, a post-implementation notification or other reporting may be required or requested depending on the change, which may require additional data or additional preclinical studies and clinical trials.

AZSTARYS and APADAZ are, and if marketing approval of any of our product candidates is granted, such product candidates may be, subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, including the requirement to implement a REMS, which could involve requirements for, among other things, a medication guide, special training for prescribers and dispensers, and patient registries. For example, in September 2018, the FDA approved the Opioid Analgesic REMS for ER/LA and IR opioids as one strategy among multiple national and state efforts to reduce the risk of abuse, misuse, addiction, overdose, and deaths due to prescription opioid analgesics. APADAZ is subject to this REMS, and we anticipate that any of our other opioid product candidates that we may choose to develop in the future, if approved by the FDA, are likely to also be subject to a REMS requirement.

The FDA may also impose requirements for costly post-marketing studies or clinical trials and surveillance to monitor the safety or efficacy of the product. APADAZ is subject to a post-marketing requirement for four deferred pediatric assessments that must be completed pursuant to the FDA's February 2018 approval letter.

Products may be approved with a label that limits their approved uses, including more limited subject populations, than we request, and regulatory authorities may require that contraindications, warnings or precautions be included in the product labeling, including a boxed warning, 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, which could limit sales of the product. For instance, the labels for both AZSTARYS and APADAZ contain black box warnings regarding the risks of abuse and dependence, and the label for APADAZ also includes warnings regarding the risks of hepatoxicity and respiratory depression, among others.

Violations of the FFDCA relating to the promotion of prescription drugs may lead to a number of actions and penalties, including warning letters, cyber letters, or untitled letters, adverse publicity, the requirement for dear-health-care-provider letters or other corrective information, fines and other monetary penalties, civil or criminal prosecution, including False Claims Act liability, restrictions on our operations and other operating requirements through consent decrees or corporate integrity agreements, debarment, exclusion from participation in federal health care programs and refusal of government contracts or future orders under existing contracts, among other consequences.

In addition, later discovery of previously unknown adverse events or other problems with our prodrug products, including those related to manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may have negative consequences, including:

- adverse inspectional findings;
- restrictions on such prodrug products, distribution, manufacturers or manufacturing processes;
- restrictions on the labeling or marketing of a drug;
- additional warnings or other restrictions on the product's indicated use, label, or marketing;
- issuance of safety alerts, dear-healthcare-provider letters, press releases or other communications containing warnings regarding the product;
- requirement to establish or modify a REMS;
- requirement to conduct post-marketing studies or surveillance;
- restrictions on drug distribution or use;
- requirements to conduct post-marketing studies or clinical trials;
- warning letters;
- recall or withdrawal of the prodrug products from the market;
- refusal to approve pending applications or supplements to approved applications that we submit and other delays;
- clinical holds, or the suspension or termination of ongoing clinical trials;
- fines, restitution or disgorgement of profits or revenue;
- suspension or withdrawal of marketing approvals or other permits or voluntary suspension of marketing;
- refusal to permit the import or export of our prodrug products;
- reputational harm;
- refusal of government contracts or future orders under existing contracts, exclusion from participation in federal health care programs, and corporate integrity agreements;
- product seizure or detention; or
- injunctions or the imposition of civil or criminal penalties, including False Claims Act liability.

Non-compliance with European Union requirements regarding safety monitoring or pharmacovigilance, and with requi rements related to the development of drugs for the pediatric population, can also result in significant financial penalties. Similarly, failure to comply with the European Union's requirements regarding the protection of personal information can also lead to significant penalties and sanctions.

The occurrence of any event or penalty described above may inhibit our ability to commercialize our products and generate revenue, and could require us to expend significant time and resources in response and could generate negative publicity. In addition, the FDA's and other regulatory authorities' policies may change, and additional government regulations may be enacted that could impair our business. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may be subject to enforcement action, and we may not achieve or sustain profitability.

Our employees, independent contractors, principal investigators, CROs, consultants, commercial collaborators, contract manufacturers, service providers and other vendors may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements.

We are exposed to the risk of misconduct by employees and independent contractors, such as principal investigators, CROs, consultants, commercial collaborators, contract manufacturers, service providers and other vendors. Such misconduct could include failures to comply with FDA regulations, to provide accurate information to the FDA, to comply with manufacturing standards that we have established or that are established by regulation, to comply with federal and state contracting and healthcare fraud and abuse laws, to report drug pricing, financial information or data accurately or to disclose unauthorized activities to us. In particular, sales, marketing and other business arrangements in the healthcare industry are subject to extensive laws intended to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws may restrict or prohibit a wide range of business activities, including, but not limited to, research, manufacturing, distribution, pricing, discounting, marketing, advertising and promotion, sales commissions, customer incentive programs and other business arrangements. Employee and independent contractor misconduct could also involve the improper use of individually identifiable information, including, without limitation, information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. In addition, federal procurement laws impose substantial penalties for misconduct in connection with government contracts and require certain contractors to maintain a code of business ethics and conduct and self-disclose credible evidence of False Claims Act violations. It is not always possible to identify and deter employee and independent contractor misconduct, and any precautions we take to detect and prevent improper activities 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. If any such actions are instituted against us, those actions could have a significant impact on our business, including the imposition of warning letters, untitled letters, cyber letters, seizure or recall of products, injunctions, withdrawal of product approval or other permits, clinical holds and termination of clinical trials, FDA refusal to approve pending applications, product detentions, FDA or DEA consent decrees, restriction or suspension of manufacturing and distribution, debarment, refusal to allow product import or export, adverse publicity, refusal of government contracts or future orders under existing contracts, dear-health-care-provider letters or other warnings or corrective information, recalls, delays, significant civil, criminal and administrative penalties including False Claims Act liability, damages, monetary fines, disgorgement, restitution, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, corporate integrity agreements, contractual damages, reputational harm, diminished profits and future earnings and curtailment or restructuring of our operations, among other consequences, any of which could adversely affect our ability to operate.

Our current and future relationships with healthcare professionals, principal investigators, consultants, customers and third-party payors in the United States and elsewhere may be subject, directly or indirectly, to applicable anti-kickback, fraud and abuse, false claims, physician payment transparency, and other healthcare laws and regulations, which could expose us to penalties.

Healthcare providers and third-party payors in the United States and elsewhere play a primary role in the recommendation and prescription of our products, as well as any product candidates for which we obtain marketing approval. Our and our commercial partners' current and future arrangements with healthcare professionals, principal investigators, consultants, customers and third-party payors may expose us to broadly applicable fraud and abuse and other healthcare laws, including, without limitation, the Anti-Kickback Statute and the False Claims Act, that may constrain the business or financial arrangements and relationships through which we and our commercial partners sell, market and distribute any product candidates for which we obtain marketing approval. In addition, we may be subject to transparency laws with respect to drug pricing and transfers of value made to physicians and other healthcare professionals. The applicable federal, state and foreign healthcare laws that may affect our ability to operate include the following:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons and entities from knowingly and willfully soliciting, offering, receiving or paying remuneration, directly or indirectly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, lease, order or arranging for the purchase, lease or order of, any good, facility, item or service, for which payment may be made, in whole or in part, under federal and state healthcare programs such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation;

- federal civil and criminal false claims laws, including the False Claims Act, which impose criminal and civil penalties, including through civil whistleblower or *qui tam* actions, against individuals or entities for, among other things, knowingly presenting, or causing to be presented, to the federal government, including the Medicare and Medicaid programs, claims for payment that are false or fraudulent or making or using a false record or statement material to a false or fraudulent claim or to avoid, decrease or conceal an obligation to pay money to the federal government, including erroneous pricing information on which mandatory rebates, discounts and reimbursement amounts are based, or in the case of the False Claims Act, for violations of the federal Anti-Kickback Statute in connection with a claim for payment or for conduct constituting reckless disregard for the truth;

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

- the Health Insurance Portability and Accountability Act, or HIPAA, which created additional 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 whether the payor is public or private, knowingly and willfully embezzling or stealing from a health care benefit program, willfully obstructing a criminal investigation of a health care offense 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 does not need to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation;

- the federal Physician Payments Sunshine Act and its implementing regulations, impose new annual reporting requirements for 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 annually report certain payments and transfers of value provided to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), certain other healthcare professionals (physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, anesthesiologist assistants and certified nurse-midwives) and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, such providers and teaching hospitals, and to report annually certain ownership and investment interests held by physicians and their immediate family members; 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; certain state laws which require drug manufacturers to comply with the industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government and may require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; certain state laws that require manufacturers to report information on the pricing of certain drug products; and certain state and local laws require the registration or pharmaceutical sales representatives.

These laws may affect our and our commercial partners' sales, marketing, and other promotional activities by imposing administrative and compliance burdens on us and our commercial partners.

Efforts to ensure that our current and future business arrangements with third parties will comply with applicable healthcare laws and regulations may 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 fraud and abuse or other healthcare laws, or that our compliance systems are inadequate to detect and report such conduct or to report accurate pricing information to the government. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, including, without limitation, damages, fines, imprisonment, exclusion from participation in government healthcare programs, such as Medicare and Medicaid, corporate integrity agreements or similar agreements to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations, which could significantly harm our business. If any of the physicians or other healthcare providers or entities with whom we currently, or expect to, do business, including future collaborators, is found not to be in compliance with applicable laws, they and we may be subject to significant penalties and potential exclusion from participation in healthcare programs as a result of their non-compliance.

Recently enacted and future legislation may increase the difficulty and cost for us to obtain marketing approval of our product candidates and increase the cost to commercialize AZSTARYS, APADAZ, and any of our product candidates that may be approved in the future and affect the prices thereof.

In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could, among other things, prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities and affect the ability to profitably sell AZSTARYS under the KP415 License Agreement or APADAZ under the APADAZ License Agreement and our ability to profitably sell any of our product candidates for which we obtain marketing approval.

Among policy makers and payors in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives. For example, in March 2010, the ACA was signed into law and was intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add new transparency requirements for the healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms.

Among the provisions of the ACA of importance to our potential product candidates are the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13.0% of the average manufacturer price for branded drugs and generic drugs, respectively;
- expansion of healthcare fraud and abuse laws, including the False Claims Act and the federal Anti-Kickback Statute, new government investigative powers and enhanced penalties for non-compliance;
- establishment of a new and distinct 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;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 70% point-of-sale discounts off negotiated prices (generally as negotiated between the Medicare Part D plan and the pharmacy) 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;
- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations and extension of the inflation percentage applicable to existing branded drugs to new formulations for purposes of computing the inflation penalty component of Medicaid rebates;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new mandatory eligibility categories for certain individuals with income at or below 133% of the Federal Poverty Level, thereby potentially increasing manufacturers' Medicaid rebate liability;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program;
- the new requirements under the federal Open Payments program and its implementing regulations;
- a new requirement to annually report drug samples that manufacturers and distributors provide to physicians; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

Since its enactment, there have been executive, judicial and congressional challenges to certain aspects of the ACA. On June 17, 2021, the U.S. Supreme Court dismissed the most recent judicial challenge to the ACA brought by several states without specifically ruling on the constitutionality of the ACA. Thus, the ACA will remain in effect in its current form. Further, prior to the U.S. Supreme Court ruling, President Biden issued an executive order that initiated a special enrollment period from February 15, 2021 through August 15, 2021 for purposes of obtaining health insurance coverage through the ACA marketplace. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. It is possible that the ACA will be subject to judicial or Congressional challenges in the future. It is unclear how any such challenges and the healthcare reform measures of the Biden administration will impact the ACA and our business.

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

Further, there has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the cost of drugs under Medicare, and reform government program reimbursement methodologies for drugs. 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. These new laws may result in additional reductions in Medicare and other healthcare funding, which could negatively impact customers for our product candidates, if approved, and, accordingly, our financial operations. It is also possible that additional governmental action is taken in response to the COVID-19 pandemic.

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

Legislative and regulatory proposals and enacted statutes have been made to expand post-approval requirements and restrict sales and promotional activities for drugs. For instance, the Drug Supply Chain Security Act imposes obligations on manufacturers of pharmaceutical products, among others, related to product tracking and tracing. Among the requirements of this new legislation, manufacturers are required to provide specified information regarding the drug products they produce to individuals and entities to which product ownership is transferred, label drug products with a product identifier and keep specified records regarding the drug products. The transfer of information to subsequent product owners by manufacturers will eventually be required to be done electronically. Manufacturers are also required to verify that purchasers of products are appropriately licensed. Further, under this legislation, manufacturers have drug product investigation, quarantine, disposition and FDA and trading-partner notification responsibilities related to counterfeit, diverted, stolen and intentionally adulterated products, as well as products that are the subject of fraudulent transactions or which are otherwise unfit for distribution such that they would be reasonably likely to result in serious health consequences or death.

We cannot be sure whether additional legislative changes will be enacted, or whether the FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of our product candidates, if any, may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-marketing testing and other requirements.

Governments outside the United States tend to impose strict price controls, which may affect our revenue, if any.

In some countries, particularly the countries of the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a product. To obtain coverage and reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies. If reimbursement of our prodrug products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be harmed, possibly materially.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could harm our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties for failure to comply with such laws and regulations.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research, development or production efforts. Our failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

If our security measures are compromised now, or in the future, or the security, confidentiality, integrity or availability of, our information technology, software, services, communications or data is compromised, limited or fails, this could result in a material adverse impact, including without limitation, a material interruption to our operations, harm to our reputation, significant fines, penalties and liability, breach or a triggering of data protection laws, privacy policies and data protection obligations, loss of customers or sales, or material disruption of our clinical trials or other business activity.

In the ordinary course of our business, we may collect, process and store proprietary, confidential and sensitive information, including personal information (including key-coded data and health information), intellectual property, trade secrets and proprietary business information owned or controlled by ourselves or other parties.

Despite the implementation of security measures, our information technology systems and data, and those of our CROs and other third parties on which we rely, are vulnerable to system failure, interruption, compromise or damage from several sources, such as data corruption; breakdown; malicious human acts; malicious code (such as computer viruses or worms); fraudulent activity; employee misconduct, theft or error; denial-of-service attacks; public health epidemics (such as the COVID-19 pandemic); cyber-attacks by sophisticated nation-state and nation-state supported actors; natural disasters; terrorism; war (such as the current situation with Ukraine and Russia); and telecommunication and electrical failures. Our recovery systems (and those of third parties upon whom we rely) are similarly vulnerable. Any of these events could lead to the unauthorized access, disclosure and use of proprietary, confidential, or otherwise non-public information (such as personal information). The techniques used by criminal actors to attack computer systems are sophisticated, change frequently and may originate from less regulated and remote areas of the world. As a result, we may not be able to address these techniques proactively or implement adequate preventative measures. Attacks upon information technology systems are also increasing in their levels of persistence and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives and expertise. As a result of the COVID-19 pandemic, we may also face increased cybersecurity risks due to our reliance on internet technology and the number of our employees who are working remotely, which may create additional opportunities for cybercriminals to exploit vulnerabilities. We may also experience security breaches that may remain undetected for an extended period. We may be required to expend significant resources, fundamentally change our business activities and practices, or modify our operations, including our clinical trial activities, or information technology in an effort to protect against security breaches and to mitigate, detect and remediate actual and potential vulnerabilities. Due to the nature of some of these threats, we may be unable to anticipate threats, and there is a risk that a threat may remain undetected for a period of time. The costs of maintaining or upgrading our cyber-security systems at the level commercially reasonable to keep up with our expanding operations and prevent against potential attacks are increasing, and despite our best efforts, our network security and data recovery measures and those of our vendors may still not be adequate to protect against such security breaches and disruptions, which could cause harm to our business, financial condition and results of operations.

If we, our service providers, partners, or other relevant third parties have experienced, or in the future experience, any security incident(s) that result in any data loss, deletion or destruction, unauthorized access to, loss of, acquisition or disclosure of, exposure or disclosure of sensitive information, or compromise related to the security, confidentiality, integrity or availability of our (or their) information technology, software, services, communications or data, it may result in a material adverse impact, including without limitation, fines, damages, litigation, enforcement actions, loss of trade secrets, a material disruption of our drug development programs, or other harm to our business. For example, the loss of clinical trial data from completed or ongoing or planned clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach was to result in a loss of or damage to our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development of our product candidates could be delayed. Additionally, applicable data protection laws, privacy policies and data protection obligations (such as contractual obligations) may require us to notify relevant stakeholders of security breaches, including affected individuals, customers and regulators. Such disclosures are costly, and the disclosure or the failure to comply with such requirements, could lead to material adverse impacts, including without limitation, negative publicity, a loss of confidence in our products or operations or breach of contract claims. There can be no assurance that the limitations of liability in our contracts would be enforceable or adequate or would otherwise protect us from liabilities or damages if we fail to comply with applicable data protection laws, privacy policies or data protection obligations related to information security or security breaches.

Further, failures or significant downtime of our information technology or telecommunication systems or those used by our third-party service providers could cause significant interruptions in our operations and adversely impact the confidentiality, integrity and availability of sensitive or confidential information, including preventing us from conducting clinical trials, tests or research and development activities and preventing us from managing the administrative aspects of our business.

We cannot be sure that our insurance coverage will be adequate or otherwise protect us from or adequately mitigate liabilities or damages with respect to claims, costs, expenses, litigation, fines, penalties, business loss, data loss, regulatory actions or materially adverse impacts arising out of our privacy and cybersecurity practices, processing or security breaches that we may experience, or that such coverage will continue to be available on acceptable terms at all. The successful assertion of one or more large claims against us that exceeds our available insurance coverage, or results in changes to our insurance policies (including premium increases or the imposition of a large deductible or co-insurance requirements), could have an adverse effect on our business. In addition, we cannot be sure that our existing coverage and coverage for errors and omissions will continue to be available on acceptable terms or that our insurers will not deny coverage as to any future claim.

Failure or perceived failure to comply with existing or future laws, regulations, contracts, self-regulatory schemes, policies, standards and other obligations related to data privacy or security could lead to government enforcement actions (which could include civil or criminal fines or penalties), a disruption of our clinical trials or commercialization of our products, private litigation, other liabilities, and/or adverse publicity. Compliance or the failure to comply with such obligations could increase the costs of our products, could limit their use or adoption, and could otherwise negatively affect our operating results and business.

Regulation of data (including personal data)is evolving, as federal, state, and foreign governments continue to adopt new, or modify existing, laws and regulations addressing data privacy and security, and the collection, processing, storage, transfer, and use of data. We and our collaborators may be subject to current, new, or modified federal, state, and foreign data protection laws and regulations. These new or proposed laws and regulations are subject to differing interpretations and may be inconsistent among jurisdictions, and guidance on implementation and compliance practices are often updated or otherwise revised, which adds to the complexity of processing personal data. Moreover, we are subject to the terms of our privacy and security policies, representations, certifications, standards, publications, contracts and other obligations to third parties related to data privacy, security and processing. These and other requirements could require us or our collaborators to incur additional costs to achieve compliance, limit our competitiveness, necessitate the acceptance of more onerous obligations in our contracts, restrict our ability to use, store, transfer, and process data, impact our or our collaborators' ability to process or use data in order to support the provision of our products, affect our or our partners' ability to offer our products or operate in certain locations, cause regulators to reject, limit, or disrupt our clinical trial activities, result in increased expenses, reduce overall demand for our products and services and make it more difficult to meet expectations of or commitments to customers or collaborators.

In the United States, numerous federal and state laws and regulations govern the collection, use, disclosure, and protection of health-related and other personal information. These laws and regulations could apply to our operations, the operations of our collaborators or other relevant stakeholders upon whom we depend. In addition, we may obtain health information from third parties (including research institutions from which we may obtain clinical trial data) that are subject to privacy and security requirements under HIPAA. We do not believe that we are currently acting as a covered entity or business associate under HIPAA and thus are not directly subject to its requirements or penalties. However, any person may be prosecuted under HIPAA's criminal provisions either directly or under aiding-and-abetting or conspiracy principles. Consequently, depending on the facts and circumstances, we could be subject to civil and criminal penalties, including if we knowingly obtain, use, or disclose individually identifiable health information maintained by a HIPAA-covered entity in a manner that is not authorized or permitted by HIPAA.

Certain states have also adopted comparable privacy and security laws and regulations, some of which may be more stringent than HIPAA. For example, the CCPA became effective on January 1, 2020. The CCPA gives California residents individual privacy rights, including the right to access and delete their personal information, opt out of certain personal information sharing and receive detailed information about how their personal information is used. It also provides for civil penalties for violations, as well as a private right of action and statutory damages for data breaches that is expected to increase class action data breach litigation. Although there are limited exemptions for clinical trial data, the CCPA's implementation standards and enforcement practices are likely to remain uncertain for the foreseeable future. The CCPA may increase our compliance costs and potential liability. Further, it is anticipated that the CCPA will be expanded on January 1, 2023, when the CPRA becomes operative. The CPRA will, among other things, give California residents the ability to limit use of certain sensitive information, establish restrictions on the retention of personal information, expand the types of data breaches subject to the CCPA's private right of action and establish a new California Privacy Protection Agency to implement and enforce the new law. Similar laws have passed in Virginia and Colorado, and have been proposed in other states and at the federal level, reflecting a trend toward more stringent privacy legislation in the United States. As we expand our operations, these and similar laws may increase our compliance costs and potential liability.

Foreign data protection laws, such as the GDPR and member state data protection laws, may also apply to health-related and other personal data that we process, including personal data relating to clinical trial participants. European data protection laws impose strict obligations on the ability to process health-related and other personal data of data subjects in Europe, including standards relating to the privacy and security of personal data. For example, the GDPR went into effect in May 2018 and imposes strict requirements for processing the personal data of individuals within the EEA. Companies that must comply with the GDPR face increased compliance obligations and risk, including more robust regulatory enforcement of data protection requirements and potential fines for noncompliance of up to €20 million or 4% of the annual global revenues of the noncompliant company, whichever is greater. Among other requirements, the GDPR regulates transfers of personal data subject to the GDPR to third countries that have not been found to provide adequate protection to such personal data, including the United States, and the efficacy and longevity of current transfer mechanisms between the European Union and the United States remains uncertain. A decision by the Court of Justice of the European Union limited how organizations could lawfully transfer personal data from the European Union/EEA to the United States by invalidating the EU-U.S. Privacy Shield Framework, and raised questions about whether the European Commission's Standard Contractual Clauses, or SCCs, one of the primary alternatives to the Privacy Shield, can lawfully be used for personal information transfers from Europe to the United States or most other countries. Similarly, the Swiss Federal Data Protection and Information Commissioner recently opined that the Swiss-U.S. Privacy Shield is inadequate for transfers of personal data from Switzerland to the U.S. The European Commission issued revised SCCs on June 4, 2021 to account for the decision of the CJEU and recommendations made by the European Data Protection Board. The revised SCCs must be used for relevant new data transfers from September 27, 2021; existing standard contractual clauses arrangements must be migrated to the revised clauses by December 27, 2022. The new SCCs apply only to the transfer of personal data outside of the EEA and not the United Kingdom; the United Kingdom's Information Commissioner's Office launched a public consultation on its draft revised data transfers mechanisms in August 2021. There is some uncertainty around whether the revised clauses can be used for all types of data transfers, particularly whether they can be relied on for data transfers to non-EEA entities subject to the GDPR. As supervisory authorities issue further guidance on personal data export mechanisms, including circumstances where the SCCs cannot be used, and/or start taking enforcement action, we could suffer additional costs, complaints and/or regulatory investigations or fines, and/or if we are otherwise unable to transfer personal data between and among countries and regions in which we operate, it could affect the manner in which we provide our services, the geographical location or segregation of our relevant systems and operations, and could adversely affect our financial results. Additionally, other countries have passed or are considering passing laws requiring local data residency and/or restricting the international transfer of data.

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

Failure, or perceived failure, to comply with federal, state and foreign data protection laws and regulations, privacy policies, contracts and other data protection obligations could result in government investigations and enforcement actions (which could include civil or criminal penalties, fines, or sanctions), private litigation, a diversion of management's attention, adverse publicity and other negative effects on our operating results and business. There can be no assurance that the limitations of liability in our contracts would be enforceable or adequate or would otherwise protect us from liabilities or damages if we fail to comply with applicable data protection laws, privacy policies or data protection obligations related to information security or security breaches. Moreover, clinical trial participants or subjects about whom we or our collaborators obtain information, as well as the providers who share this information with us, may contractually limit our ability to use and disclose the information. Claims that we have violated individuals' privacy rights or failed to comply with data protection laws, contracts, privacy notices or other obligations even if we are not found liable, could be expensive and time-consuming to defend and could result in adverse publicity that could harm our business.

Any of these matters could materially adversely affect our business, financial condition, or operational results.

Risks Related to Employee Matters and Managing Our Growth

Our future success depends on our ability to retain key executives and to attract, retain and motivate qualified personnel.

We are highly dependent on the management, research and development, clinical, financial and business development expertise of Travis C. Mickle, Ph.D., our president and chief executive officer, R. LaDuane Clifton, CPA, our chief financial officer, and Sven Guenther, Ph.D., our executive vice president research and development, as well as the other members of our scientific and clinical teams. Although we have employment agreements with each of our executive officers, these agreements do not obligate them to continue working for our company and they may terminate their employment with us at any time.

Recruiting and retaining qualified scientific and clinical personnel and, if we progress the development of our product candidate pipeline toward scaling up for commercialization, manufacturing and sales and marketing personnel, will also be critical to our success. The loss of the services of our executive officers or other key employees could impede the achievement of our research, development and commercialization objectives and seriously harm our ability to successfully implement our business strategy. Furthermore, replacing executive officers and key employees may be difficult and may take an extended period of time because of the limited number of individuals in our industry with the breadth of skills and experience required to successfully develop, gain regulatory approval of and commercialize our prodrug product candidates. Competition to hire from this limited pool is intense, and we may be unable to hire, train, retain or motivate these key personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of scientific and clinical personnel from universities and research institutions. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. Our consultants and advisors may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. If we are unable to continue to attract and retain high quality personnel, our ability to pursue our growth strategy will be limited.

Risks Related to Ownership of Our Common Stock and Our Status as a Public Company

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

Our stock price has been, and is likely to continue to be, volatile. Since shares of our common stock were sold in our initial public offering in April 2015 at a price of $176.00 per share (adjusted to give effect to the 1-for-16 reverse stock split), our stock price has ranged from a low of $1.94 to a high of $418.40 through March 29, 2022. In addition, the stock market in general and the market for pharmaceutical companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, investors may not be able to sell their common stock at or above the price paid for the shares. The market price for our common stock may be influenced by many factors, including:

- actual or anticipated variations in our operating results;
- changes in financial estimates by us or by any securities analysts who might cover our stock;
- conditions or trends in our industry, including without limitation changes in the structure of healthcare payment systems;
- stock market price and volume fluctuations of comparable companies and, in particular, those that operate in the pharmaceutical industry;
- announcements by us or our competitors of significant acquisitions, strategic partnerships or divestitures;
- announcements of investigations or regulatory scrutiny of our operations or lawsuits filed against us;
- adverse regulatory announcements or determinations regarding our product candidates;
- capital commitments;
- investors' general perception of us and our business;
- global macroeconomic conditions, including inflation, labor shortages, supply chain shortages, or other economic, political or legal uncertainties or adverse developments;
- political unrest, terrorism and wars, such as the current situation with Ukraine and Russia, which could delay or disrupt our business, and if such political unrest escalates or spills over to or otherwise impacts additional regions it could heighten many of the other risk factors included in this Item 1A;
- other events or factors, including those resulting from system failures and disruptions, earthquakes, hurricanes, other natural disasters, pandemics, or responses to these events;
- recruitment or departure of key personnel; and
- sales of our common stock, including sales by our directors and officers or specific stockholders.

Many of the factors described above are not within our control. For instance, in May 2016, we announced that the Anesthetic and Analgesic Drug Products Advisory Committee and the Drug Safety and Risk Management Advisory Committee of the FDA voted 16 to 4 for the approval of APADAZ but voted 18 to 2 against inclusion of abuse-deterrent labeling for APADAZ. The announcement was followed by a substantial decrease in the trading price of our common stock on Nasdaq. Additionally, when we announced in June 2016 that the FDA had issued a CRL for the APADAZ NDA, the trading price of our common stock on Nasdaq was subject to another substantial decrease. We cannot guarantee that future announcements will not have similar effects on the trading price of our common stock.

In addition, in the past, stockholders have initiated class action lawsuits against pharmaceutical and biotechnology companies following periods of volatility in the market prices of these companies' stock. For instance, in December 2016, we received notice of a class action suit filed against us in the Iowa District Court in Johnson County by a stockholder alleging that we, certain of our senior executives and directors who signed the registration statement in connection with our initial public offering, and each of the investment banks that acted as underwriters for the offering negligently issued untrue statements of material facts and omitted to state material facts required to be stated in the registration statement and incorporated offering materials that we filed with the U.S. Securities and Exchange Commission, or the SEC, in support of the offering. In June 2018, the case was dismissed without prejudice to members of the putative class. Future litigation could cause us to incur substantial costs and divert management's attention and resources from our business. Further, biotechnology and pharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance.

A portion of our outstanding warrants are entitled to certain anti-dilution protections which, if triggered, may cause dilution to your investment.

The Deerfield Warrant includes an exercise price protection provision, pursuant to which the exercise price of the Deerfield Warrant will be adjusted downward on a broad-based weighted-average basis if we issue or sell any shares of common stock, convertible securities, warrants or options at a sale or exercise price per share less than the greater of (i) $38.34 per share, which represents the Deerfield Warrant's exercise price, or (ii) the closing sale price of our common stock on the last trading date immediately prior to such issuance or, in the case of a firm commitment underwritten offering, on the date of execution of the underwriting agreement between us and the underwriters for such offering. Additionally, if we effect an "at the market offering", as defined in Rule 415 of the Securities Act, of our common stock, the exercise price of the Deerfield Warrant will be adjusted downward pursuant to this anti-dilution adjustment only if such sales are made at a price less than $38.34 per share, provided that this anti-dilution adjustment will not apply to certain specified sales. For example, in June 2021, we entered into the June 2021 Inducement Letters with certain holders of the January 2021 Inducement Warrants, pursuant to which such holders exercised for cash their January 2021 Inducement Warrants to purchase 6,117,509 shares of our common stock in exchange for the June 2021 Inducement Warrants on substantially the same terms as the January 2021 Inducement Warrants, except as set forth in the following sentence, to purchase up to 1,529,379 shares of our common stock, which was equal to 25% of the number of shares of our common stock issued upon exercise of the January 2021 Inducement Warrants. The purchase price of the June 2021 Inducement Warrants was $0.125 per share underlying each June 2021 Inducement Warrant, and the June 2021 Inducement Warrants have an exercise price of $16.50 per share. The completion of this transaction resulted in the exercise price of the Deerfield Warrant being adjusted downward to $38.34 per share from its pre-transaction exercise price of $46.25 per share.

Future sales and issuances of equity and debt could result in additional dilution to our stockholders.

We may need additional capital in the future to fund our planned future operations, including to complete potential clinical trials for our product candidates. To raise capital, we may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time.

For instance, in January 2021, we issued and sold 6,765,463 shares of our common stock, pre-funded warrants to purchase 926,844 shares of our common stock and warrants to purchase 7,692,307 shares of our common stock at an exercise price per share of $6.50 in the Public Offering (as defined herein). Also in January 2021, the underwriter exercised its over-allotment option, in part, for warrants to purchase 754,035 shares of our common stock. Further, in February 2021, the underwriter again exercised its over-allotment option, in part, to purchase 374,035 shares of our common stock.

Also in January 2021, we entered into the January 2021 Inducement Letters with certain holders of the Existing Warrants, pursuant to which such holders exercised for cash their Existing Warrants to purchase 6,620,358 shares of our common stock in exchange for the January 2021 Inducement Warrants on substantially the same terms as the Existing Warrants, except as set forth in the following sentence, to purchase up to 7,944,430 shares of our common stock, which was equal to 120% of the number of shares of our common stock issued upon exercise of the Existing Warrants. The purchase price of the January 2021 Inducement Warrants was $0.125 per share underlying each January 2021 Inducement Warrant, and the January 2021 Inducement Warrants had an exercise price of $6.36 per share.

In addition, in June 2021, we entered into the June 2021 Inducement Letters with certain holders of the January 2021 Inducement Warrants, pursuant to which such holders exercised for cash their January 2021 Inducement Warrants to purchase 6,117,509 shares of our common stock in exchange for the June 2021 Inducement Warrants on substantially the same terms as the January 2021 Inducement Warrants, except as set forth in the following sentence, to purchase up to 1,529,379 shares of our common stock, which was equal to 25% of the number of shares of our common stock issued upon exercise of the January 2021 Inducement Warrants. The purchase price of the June 2021 Inducement Warrants was $0.125 per share underlying each June 2021 Inducement Warrant, and the June 2021 Inducement Warrants have an exercise price of $16.50 per share.

If the holders of any of these warrants elect to exercise such warrants and receive shares of common stock, your ownership interest will be diluted and the market price of our common stock may be materially and adversely effected.

In June 2021, at the annual meeting of stockholders, the stockholders approved the Amended and Restated 2014 Equity Incentive Plan, which, among other things, added 4,900,000 shares to the equity plan pool, and the employee stock purchase plan, or the 2021 ESPP, which allows for employees to purchase up to 1.5 million shares of stock through the plan. In addition, in July 2021, the Company entered into the Equity Distribution Agreement with JMP Securities LLC, or JMP, and RBC Capital Markets, LLC, or RBCCM, under which the Company may offer and sell, from time to time at its sole discretion, shares of its common stock having an aggregate offering price of up to $75,000,000 through JMP and RBCCM as its sales agents.

Pursuant to our equity incentive plan, we may grant equity awards and issue additional shares of our common stock to our employees, directors and consultants, and the number of shares of our common stock reserved for future issuance under this plan will be subject to automatic annual increases in accordance with the terms of the plans. To the extent that new options are granted and exercised, or we issue additional shares of common stock in the future, either through the 2021 ESPP, Equity Distribution Agreement or through other means, our stockholders may experience additional dilution, which could cause our stock price to fall.

The accounting method for the Deerfield Warrant and certain other warrants issued could have a material effect on our reported financial results.

The Deerfield Warrant and certain other warrants we issued contain embedded derivatives, which require mark-to-market accounting treatment and could result in a gain or loss on a quarterly basis with regards to the mark-to-market value of that feature. Such accounting treatment could have a material impact on, and could potentially result in significant volatility in, our results of operations.

Sales of a substantial number of shares of our common stock in the public market could cause the market price of our common stock to drop significantly, even if our business is doing well.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. If our stockholders sell, or the market perceives that our stockholders intend to sell, substantial amounts of our common stock in the public market, the market price of our common stock could decline significantly.

Anti-takeover provisions in our certificate of incorporation and bylaws, as well as provisions of Delaware law and the terms of some or our contracts, might discourage, delay or prevent a change in control of our company or changes in our board of directors or management and, therefore, depress the price of our common stock.

Our certificate of incorporation and bylaws and Delaware law contain provisions that may discourage, delay or prevent a merger, acquisition or other change in control that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares of our common stock or transactions that our stockholders might otherwise deem to be in their best interests. These provisions may also prevent or frustrate attempts by our stockholders to replace or remove members of our board of directors or our management. Therefore, these provisions could adversely affect the price of our stock. Our corporate governance documents include provisions:

- establishing a classified board of directors with staggered three-year terms so that not all members of our board of directors are elected at one time;
- providing that directors may be removed by stockholders only for cause;
- preventing the ability of our stockholders to call and bring business before special meetings and to take action by written consent in lieu of a meeting;
- requiring advance notice of stockholder proposals for business to be conducted at meetings of our stockholders and for nominations of candidates for election to our board of directors;
- permitting the board of directors to issue up to 10,000,000 shares of preferred stock with any rights, preferences and privileges they may designate;
- limiting the liability of, and providing indemnification to, our directors and officers;
- providing that vacancies may be filled by remaining directors;
- preventing cumulative voting; and
- providing for a supermajority requirement to amend our bylaws.

As a Delaware corporation, we are also subject to provisions of Delaware law, including Section 203 of the General Corporation Law of the State of Delaware, whi ch prohibits a Delaware corporation from engaging in a broad range of business combinations with any "interested" stockholder for a period of three years following the date on which the stockholder became an "interested" stockholder.

In addition, the provisions of our termination agreement with Aquestive and the Deerfield Warrant may delay or prevent a change in control of our company. For example, if we enter into a merger, an asset sale or any other change of control transaction, then Aquestive will be entitled to a royalty equal to 10% of the price being paid to us and our stockholders in such transaction which is attributable to the value of AZSTARYS, KP484, KP879 or KP1077. Further, under the Deerfield Warrant, Deerfield has the right to demand that we redeem the Deerfield Warrant for a cash amount equal to the Black-Scholes value of a portion of the warrant upon the occurrence of specified events, including a merger, an asset sale or any other change of control transaction. A takeover of us may trigger the requirement that we repurchase the Deerfield Warrant, which could make it more costly for a potential acquirer to engage in a business combination transaction with us.

Any provision of our certificate of incorporation, bylaws or Delaware law or any term of our contracts that has the effect of discouraging, delaying or preventing a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock and could also affect the price that some investors are willing to pay for our common stock.

Our certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or other employees.

Our certificate of incorporation provides that the Court of Chancery of the State of Delaware is the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a breach of fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (iii) any action asserting a claim against us arising pursuant to any provisions of the Delaware General Corporation Law, or DGCL, our certificate of incorporation or our bylaws, or (iv) any action asserting a claim against us that is governed by the internal affairs doctrine.

In addition, on and effective July 15, 2020, we amended and restated our bylaws, or the Bylaws, pursuant to which: (i) unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if and only if the Court of Chancery of the State of Delaware lacks subject matter jurisdiction, any state court located within the State of Delaware or, if and only if all such state courts lack subject matter jurisdiction, the federal district court for the District of Delaware) shall be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (A) any derivative action or proceeding brought on behalf of us; (B) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, officers or other employees, to us or our stockholders; (C) any action or proceeding asserting a claim against us or any of our current or former directors, officers or other employees, arising out of or pursuant to any provision of the DGCL our certificate of incorporation or our Bylaws (as each may be amended from time to time); (D) any action or proceeding to interpret, apply, enforce or determine the validity of our certificate of incorporation or our Bylaws (including any right, obligation, or remedy thereunder); (E) any action or proceeding as to which the DGCL confers jurisdiction to the Court of Chancery of the State of Delaware; and (F) any action or proceeding asserting a claim against us or any of our directors, officers or other employees, governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants, *provided that* this provision shall not apply to suits brought to enforce a duty or liability created by the Securities Act or the Exchange Act, or any other claim for which the federal courts have exclusive jurisdiction; (ii) unless we consent in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act; and (iii) any person or entity holding, owning or otherwise acquiring any interest in any security of us shall be deemed to have notice of and consented to the provisions of the Bylaws.

These choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. If a court were to find the choice of forum provision contained in our certificate of incorporation or our Bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions.

We might not be able to utilize a significant portion of our net operating loss carryforwards, which could adversely affect our profitability.

As of December 31, 2021, we had federal net operating loss carryforwards of approximately $233.3 million, due to prior period losses, $138.1 million of which, if not utilized, will begin to expire in 2027. These net operating loss carryforwards could expire unused and be unavailable to offset future income tax liabilities, which could adversely affect our profitability. These federal net operating loss carryforwards are fully reserved under a valuation allowance in the balance sheet as of December 31, 2021. On December 22, 2017, the U.S. government enacted H.R. 1, "An Act to provide for reconciliation pursuant to titles II and V of the concurrent resolution on the budget for fiscal year 2018" (informally titled the Tax Cuts and Jobs Act). Under the Tax Cuts and Jobs Act, U.S. federal net operating losses incurred in 2018 and in future years may be carried forward indefinitely, but the deductibility of such federal net operating losses is limited. It is uncertain if and to what extent various states will conform to the Tax Cuts and Jobs Act. To the extent that we continue to generate taxable losses in the United States, unused losses will carry forward to offset future taxable income (subject to any applicable limitations), if any. In addition, under Section 382 and Section 383 of the Code, if a corporation undergoes an ''ownership change,'' which is generally defined as a greater than 50% change, by value, in its equity ownership over a three-year period, the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income may be limited. We performed a Section 382 ownership change analysis in 2017 and determined that we experienced an ownership change in 2010, which resulted in a portion of our net operating loss carryforwards being subject to an annual limitation under Section 382 through 2012. No other ownership changes or limitations on our historical net operating loss carryforwards were noted through the year ended December 31, 2017. In addition, we may have already experienced an ownership change, or may experience ownership changes in the future, as a result of shifts in our stock ownership, including as a result of the conversion of our outstanding convertible debt or as a result of changes in our stock ownership. If we determine that an ownership change has occurred and our ability to use our historical net operating loss carryforwards is materially limited, it would harm our future operating results by increasing our future tax obligations. As of December 31, 2021, we maintain a full valuation allowance over our deferred tax assets for financial reporting purposes.

Changes in tax laws or regulations that are applied adversely to us may have a material adverse effect on our business, cash flow, financial condition or results of operations.

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, which could affect the tax treatment of our domestic earnings, if any. Any new taxes could adversely affect our business operations, and our business and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us. For example, legislation enacted in 2017, informally titled the Tax Cuts and Jobs Act, significantly revised the Internal Revenue Code of 1986, as amended. Future guidance from the Internal Revenue Service and other tax authorities with respect to the Tax Cuts and Jobs Act may affect us, and certain aspects of the Tax Cuts and Jobs Act could be repealed or modified in future legislation. In addition, it is uncertain if and to what extent various states will conform to the Tax Cuts and Jobs Act or any newly enacted federal tax legislation. Changes in corporate tax rates, the realization of net deferred tax assets relating to our operations, the taxation of foreign earnings, and the deductibility of expenses under the Tax Cuts and Jobs Act or future reform legislation could have a material impact on the value of our deferred tax assets, could result in significant one-time charges, and could increase our future U.S. tax expense. The U.S. presidential administration and members of the U.S. Congress have proposed significant changes in U.S. federal income tax law, regulation and government policy within the United States, which could affect us and our business. For example, these proposals include significant changes to the U.S. federal income taxation of business entities including, among others, the imposition of minimum taxes or surtaxes on certain types of income. These proposals are being considered by the U.S. Congress, but the likelihood of these or other changes being enacted or implemented is unclear. We are currently unable to predict whether these or other changes will occur and, if so, the ultimate impact on our business. To the extent that such changes have a negative impact on us, including as a result of related uncertainty, these changes may materially and adversely impact our business, financial condition, results of operations and cash flow.

If we fail to maintain proper and effective internal control, our ability to produce accurate financial statements on a timely basis could be impaired.

We are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, and the rules and regulations of the stock market on which our common stock is listed. The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal control over financial reporting. For our fiscal year ended December 31, 2021, we performed system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting in our Annual Report on Form 10-K, as required by Section 404 of the Sarbanes-Oxley Act. We will be required to perform this evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting on an annual basis. This requires that we incur substantial additional professional fees and internal costs and that we expend significant management efforts on an annual basis. We have and will be required to test our internal control within a specified period, and, as a result, we may experience difficulty in meeting these reporting requirements.

We may discover weaknesses in our system of internal financial and accounting controls and procedures that could result in a material misstatement of our financial statements. Our internal control over financial reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

If we are not able to comply with the requirements of Section 404 of the Sarbanes-Oxley Act, or if we are unable to maintain proper and effective internal control, we may not be able to produce timely and accurate financial statements. If that were to happen, the market price of our stock could decline and we could be subject to sanctions or investigations by the stock exchange on which our common stock is listed, the SEC or other regulatory authorities.

General Risk Factors

An active trading market for our common stock may not be sustained and you may not be able to resell your shares of our common stock for a profit, if at all.

An active trading market for our shares may not be sustained. If an active market for our common stock is not sustained, it may be difficult for you to sell our shares at an attractive price, or at all.

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

The trading market for our common stock is influenced by the research and reports that securities or industry analysts publish about us or our business, our market and our competitors. We do not have any control over these analysts. If one or more of the analysts who cover us downgrade our shares or change their opinion of our shares, our share price would likely decline. If one or more of these analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

Because we do not anticipate paying any cash dividends on our common stock in the foreseeable future, capital appreciation, if any, will be your sole source of gains and you may never receive a return on your investment.

You should not rely on an investment in our common stock to provide dividend income. We have not declared or paid cash dividends on our common stock to date. We currently intend to retain our future earnings, if any, to fund the development and growth of our business. In addition, the terms of any future debt agreements may preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future. Investors seeking cash dividends should not purchase our common stock.

We incur increased costs and demands upon management as a result of being a public company.

As a public company listed in the United States, we incur significant additional legal, accounting and other costs. These additional costs could negatively affect our financial results. In addition, changing laws, regulations and standards relating to corporate governance and public disclosure, including regulations implemented by the SEC, may increase legal and financial compliance costs and make some activities more time consuming. These laws, regulations and standards are subject to varying interpretations and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. We intend to invest resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management’s time and attention from revenue-generating activities to compliance activities. If, notwithstanding our efforts to comply with new laws, regulations and standards, we fail to comply, regulatory authorities may initiate legal proceedings against us.

Failure to comply with these rules might also make it more difficult for us to obtain some types of insurance, including director and officer liability insurance, and we might be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, on committees of our board of directors or as members of senior management.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2. PROPERTIES

As of December 31, 2021, we occupied approximately 17,000 square feet of headquarters office space in Celebration, Florida, comprised of two contiguous office suites, under a non-cancelable lease agreement that expires in August 2025 and February 2026, respectively. One such office suite, which is approximately 6,300 square feet and has an expiration date of February 2026, is subleased to a third party. We have the right to extend the term of the lease for two successive five-year terms upon expiration. In addition, we occupy leased laboratory space in Coralville, Iowa and Blacksburg, Virginia and leased office space in Chapel Hill, North Carolina. We believe that our facilities are adequate for our current needs.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we may be involved in routine legal proceedings, as well as demands, claims and threatened litigation, which arise in the normal course of our business. We believe there is no litigation pending that would reasonably be expected to, individually or in the aggregate, have a material adverse effect on our results of operations or financial condition.

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

Common Stock Listing

On October 19, 2021, our common stock began trading on the Nasdaq Global Select Market under the ticker symbol "KMPH". Prior to that date, our common stock was listed on the Nasdaq Capital Market under the ticker symbol "KMPH".

Holders of our Common Stock

As of December 31, 2021, there were approximately 104 holders of record of our common stock. The actual number of stockholders is greater than this number of record holders, and includes stockholders who are beneficial owners, but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include stockholders whose shares may be held in trust by other entities.

Dividend Policy

We have never declared or paid any cash dividends on our common stock. We anticipate that we will retain all of our future earnings, if any, for use in the operation and expansion of our business and do not anticipate paying cash dividends in the foreseeable future.

Securities Authorized for Issuance under Equity Compensation Plans

The information regarding securities authorized for issuance under equity compensation plans is included in Part III of this report.

Recent Sales of Unregistered Securities

None.

Purchases of Equity Securities By the Issuer and Affiliated Purchasers

Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs(1)	Maximum Number (or Approximate Dollar Value) of Shares that May Yet Be Purchased Under the Plans or Programs
October 1, 2021 through October 31, 2021	—	$ —	—	$ —
November 1, 2021 through November 30, 2021	—	—	—	—
December 1, 2021 through December 31, 2021	320,161	8.90	320,161	47,200,000
Total	**320,161**	**$ 8.90**	**320,161**	**$ 47,200,000**

(1) On December 20, 2021, the Company announced that it had initiated a share repurchase program, or the Share Repurchase Program, pursuant to which the Company may repurchase up to $50 million of shares of its common stock through December 31, 2023. Repurchases will be made in compliance with Rule 10b-18 of the Securities Exchange Act of 1934, as amended, subject to a variety of factors, including the market price of the Company's common stock, general market and economic conditions and applicable legal requirements. The exact number of shares to be repurchased by the Company is not guaranteed and the program may be suspended, modified, or discontinued at any time without prior notice.

ITEM 6. [Reserved]

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and related notes thereto included elsewhere in this Annual Report on Form 10-K. Some of the information contained in this discussion and analysis or set forth elsewhere in this Annual Report on Form 10-K, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this Annual Report on Form 10-K, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a specialty pharmaceutical company focused on the discovery and development of treatments for central nervous system, or CNS, and rare disease indications that allow us to target high-value areas with significant unmet needs. Our core competency is the discovery and development of proprietary prodrugs to treat serious medical conditions through our proprietary Ligand Activated Therapy, or LAT®, platform technology. We utilize our proprietary LAT platform technology to generate improved prodrug versions of drugs approved by the U.S. Food and Drug Administration, or FDA, as well as to generate prodrug versions of existing compounds that may have applications for new disease indications. Our prodrug product candidate pipeline is currently focused on the high need areas of idiopathic hypersomnia, or IH, and other CNS/rare diseases. Our approved product, AZSTARYS®, formerly referred to as KP415, a new once-daily treatment for attention deficit hyperactivity disorder, or ADHD, in patients age six years and older contains our prodrug, serdexmethylphenidate, or SDX. AZSTARYS is being commercialized in the United States by Corium, Inc., or Corium, an affiliate of Gurnet Point Capital, L.P. Our lead clinical development product candidate, KP1077, is based on SDX, our prodrug of d-methlyphenidate, or d-MPH, and is in development for the treatment of IH and narcolepsy. Our prodrug product candidate for the treatment of stimulant use disorder, or SUD, is KP879.

Our strategic focus on CNS/rare disease indications guides our business development efforts to expand our development pipeline with the goal of accelerating value creation. We are considering external opportunities within neurology and neurodegenerative diseases, psychiatric disorders, and other rare diseases, along with adjacent or related therapeutic categories. We are seeking assets that are undergoing Phase 2 clinical trials or Phase 3 clinical trials, subject to our specific evaluation criteria, that we can in-license or acquire. If we are successful, expanding our development pipeline could be accretive to our value proposition by potentially adding new clinical data catalysts and the potential to create incremental long-term value for shareholders. In addition, we believe that a multi-channel development program with several product candidates addressing various CNS/rare disease indications will diversify risk and potentially create an impactful portfolio of commercial-stage products in the future.

We expect that our sources of revenues will be through payments arising from our license agreements with Commave Therapeutics SA (formerly known as Boston Pharmaceuticals S.A.), or Commave, an affiliate of Gurnet Point Capital, L.P., and KVK-Tech, Inc., or KVK, our consulting agreement with Corium and through other consulting arrangements and any other future arrangements we might enter into related to one of our product candidates. To date, we have generated revenue from the KP415 License Agreement (as defined below), reimbursement of out-of-pocket third-party costs, and performance of consulting services.

In May 2021, we announced that SDX, our proprietary prodrug of d-MPH and the primary active pharmaceutical ingredient, or API, in AZSTARYS, was classified as a Schedule IV controlled substance by the U.S. Drug Enforcement Administration, or DEA. AZSTARYS is classified as a Schedule II controlled substance as it includes a 70:30 mixture of SDX (Schedule IV) and d-MPH (Schedule II), respectively.

In March 2021, we announced that the FDA approved the New Drug Application, or NDA, for AZSTARYS, a once-daily product for the treatment of ADHD in patients ranging from six years and older. Commave has licensed the commercial rights for AZSTARYS as provided by the KP415 License Agreement, and has tasked Corium with leading all commercialization activities for AZSTARYS in the United States. Corium commercially launched AZSTARYS in the United States during the third quarter of 2021. In December 2021, Commave sublicensed commercialization rights for AZSTARYS in greater China to Shanghai Ark Biopharmaceutical Ltd.

We have historically had negative cash flows from operations. Our cash flows provided by (used in) operations for the years ended December 31, 2021, and 2020 were $10.4 million and ($1.9) million, respectively.

We expect to continue to incur significant expenses and minimal positive net cash flows from operations or negative net cash flows from operations for the foreseeable future, and those expenses and losses may fluctuate significantly from quarter-to-quarter and year-to-year. We anticipate that our expenses will fluctuate substantially as we:

- continue our ongoing preclinical studies, clinical trials and our product development activities for our pipeline of product candidates;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;
- continue research and preclinical development and initiate clinical trials of our product candidates;
- seek to discover and develop additional product candidates either internally or in partnership with other pharmaceutical companies;
- adapt our regulatory compliance efforts to incorporate requirements applicable to marketed products;
- maintain, expand and protect our intellectual property portfolio; and
- incur additional legal, accounting and other expenses in operating as a public company.

Recent Financial Developments

In January and February 2021, we undertook a series of transactions to regain our Nasdaq Capital Market listing and improve our balance sheet. These included a reverse stock split, an underwritten public offering, or the Public Offering, a restructuring of our debt and ultimately a payoff of all remaining debt and a transaction in which we induced the holders of some of the warrants we issued in the public offering to exercise those warrants for cash.

Reverse Stock Split and Nasdaq Relisting

Effective May 21, 2020, our common stock had been delisted from the Nasdaq Capital Market and we began listing on the OTC Markets Venture Market under the symbol “KMPH”. In anticipation of the Public Offering, we determined we would need to regain our Nasdaq listing.

In order to relist our common stock on the Nasdaq Capital Market, our common stock was required to satisfy the initial listing standards of the Nasdaq Capital Market, which included among others, that we have stockholders' equity of at least $5.0 million, a market value of unrestricted publicly held shares of at least $15.0 million, at least 1.0 million unrestricted publicly held shares, at least 300 unrestricted round lot stockholders, at least three market makers and a bid price of at least $4.00 per share, or, collectively, the Nasdaq Listing Requirements. Accordingly, on December 23, 2020, we effectuated a 1-for-16 reverse stock split of our common stock in order to satisfy the bid price component of the Nasdaq Listing Requirements.

On January 7, 2021, our common stock was approved for listing on the Nasdaq Capital Market. Our common stock began trading on the Nasdaq Capital Market on January 8, 2021, under the ticker symbol "KMPH".

On October 19, 2021, our common stock was approved for listing on the Nasdaq Global Select Market. Our common stock began trading on the Nasdaq Global Select Market on that date, under the ticker symbol "KMPH".

Debt Restructuring

In anticipation of the Public Offering, and to meet the Nasdaq Listing Requirements, we agreed in December 2020 to restructure our outstanding senior secured convertible notes issued in December 2019 and January 2020, or the Senior Secured Notes, in the aggregate principal amount of $60.8 million and the senior secured convertible promissory note held by Deerfield Private Design Fund III, L.P., or Deerfield, in the principal amount of $7.5 million, or the Deerfield Note, and, collectively the Senior Secured Notes, the Facility Notes. The total outstanding principal and accrued interest under the Facility Notes was $69.4 million as of December 31, 2020.

Under the terms of the agreement we entered into with our lenders in connection with this debt restructuring, which we refer to as the December 2020 Exchange Agreement, on January 12, 2021, in connection with the closing of our Public Offering, we:

- exchanged $31.5 million of the outstanding principal and accrued interest on the Facility Notes for (i) 31,476.98412 shares of our Series B-2 convertible preferred stock, and (ii) warrants exercisable for 3,632,019 shares of our common stock, or the Exchange Warrants; and
- made a payment of $30.3 million, or the Debt Payment, in partial repayment of the remaining outstanding principal and accrued interest on the Facility Notes.

Each share of Series B-2 convertible preferred stock issued pursuant to the December 2020 Exchange Agreement has a stated value of $1,000 and is convertible into shares of our common stock at any time, subject to specified limits, at a conversion price of $6.4999. The shares of Series B-2 convertible preferred stock issued under the December 2020 Exchange Agreement are convertible into an aggregate of 4,842,690 shares of our common stock.

The Exchange Warrants have substantially the same terms and conditions as the warrants sold by us in our January 2021 underwritten offering.

Following the completion of these transactions, the aggregate balance of principal and accrued interest remaining outstanding under the Facility Notes was approximately $7.6 million. With respect to this remaining outstanding balance under the Facility Notes, the December 2020 Exchange Agreement amended the terms of that debt to provide that:

- the maturity date was changed to March 31, 2023, and the debt is prepayable upon specified conditions; and
- interest would accrue at the rate of 6.75% per annum, payable quarterly, would be added to principal until June 30, 2021, and then be payable in cash thereafter.

In connection with the closing of the transactions contemplated under the December 2020 Exchange Agreement, we filed an amended and restated certificate of designation with the Secretary of State of Delaware in order to modify the terms of our authorized, but unissued, shares of Series B-2 convertible preferred stock to reflect those contemplated under the December 2020 Exchange Agreement.

We also filed a registration statement to register for resale under the Securities Act the shares of common stock issuable upon conversion of the shares of Series B-2 convertible preferred stock and exercise of the Exchange Warrants.

Public Offering

On January 8, 2021, we issued and sold 6,765,463 shares of our common stock, pre-funded warrants to purchase 926,844 shares of our common stock and warrants to purchase 7,692,307 shares of our common stock at an exercise price per share of $6.50 in the Public Offering. In addition, we granted the underwriter for the Public Offering an option to purchase, for a period of 45 days, up to an additional 1,153,846 shares of our common stock and/or warrants to purchase up to an additional 1,153,846 shares of our common stock. On January 8, 2021, the underwriter exercised its over-allotment option, in part, for warrants to purchase 754,035 shares of our common stock. On January 12, 2021, we closed the Public Offering. Further, on February 1, 2021, the underwriter again exercised its over-allotment option, in part, to purchase 374,035 shares of our common stock. On February 3, 2021, we closed the underwriter's partial exercise of its over-allotment option.

The aggregate gross proceeds to us from the Public Offering, including from the exercises by the underwriter of its over-allotment option, totaled $52.4 million, before deducting underwriting discounts and commissions and offering expenses payable by us.

On January 25, 2022, we filed an amendment to the registration statement on Form S-1 (File No. 333-250945) on Form S-3 covering the issuance of the shares of our common stock issuable upon the exercise of the warrants issued in the Public Offering and remaining unexercised as of the date of the amendment, which was declared effective on February 1, 2022.

December 2020 Exchange Agreement Amendment

On January 12, 2021, in connection with the transactions contemplated by the December 2020 Exchange Agreement, we entered into an Amendment to Senior Secured Convertible Notes and Amendment to Warrant, or the January 2021 Amendment, with Deerfield and Deerfield Special Situations Fund, LP, collectively the Deerfield Holders. The January 2021 Amendment modified certain specified terms of (i) the Facility Notes and (ii) the warrant held by Deerfield, issued on June 2, 2014, or the Deerfield Warrant, to, among other things, exclude the transactions contemplated by the December 2020 Exchange Agreement and issuance of securities pursuant to the Underwriting Agreement from the anti-dilution provisions of the Facility Notes and the Deerfield Warrant.

January 2021 Warrant Exercise Inducement Letters and Issuance of Warrants

On January 26, 2021, we entered into warrant exercise inducement offer letters, or the January 2021 Inducement Letters, with certain holders of warrants issued in the Public Offering, or the Existing Warrants, and collectively, the Exercising Holders, pursuant to which such holders exercised for cash their Existing Warrants to purchase 6,620,358 shares of our common stock in exchange for new warrants, or the January 2021 Inducement Warrants, on substantially the same terms as the Existing Warrants, except as set forth in the following sentence, to purchase up to 7,944,430 shares of our common stock, which was equal to 120% of the number of shares of our common stock issued upon exercise of the Existing Warrants, or the January 2021 Inducement Transaction. The purchase price of the January 2021 Inducement Warrants was $0.125 per share underlying each January 2021 Inducement Warrant, and the January 2021 Inducement Warrants have an exercise price of $6.36 per share. We received aggregate gross proceeds of $44.0 million from the exercise of the Existing Warrants by the Exercising Holders and the sale of the January 2021 Inducement Warrants.

We also filed a registration statement on Form S-3 covering the resale of the shares of our common stock issued or issuable upon the exercise of the January 2021 Inducement Warrants which was declared effective on February 16, 2021.

Payoff of Facility Agreement Notes and Termination of Facility Agreement

On February 8, 2021, we entered into a payoff letter with the Facility Note holders, pursuant to which we agreed to pay off and thereby terminate the Facility Agreement.

Pursuant to the payoff letter, we paid a total of $8.0 million to the Facility Note holders, representing the principal balance, accrued interest outstanding and a prepayment fee in repayment of our outstanding obligations under the Facility Agreement.

Pursuant to the payoff letter, all outstanding indebtedness and obligations owed by us to the Facility Note holders under the Facility Agreement have been paid in full. The Facility Agreement and the notes thereunder, as well as the security interests in the assets of us securing the Facility Agreement and note obligations, have been terminated.

June 2021 Warrant Exercise Inducement Letters and Issuance of Warrants

On June 18, 2021, we entered into warrant exercise inducement offer letters, or the June 2021 Inducement Letters, with certain holders of the January 2021 Inducement Warrants, pursuant to which such holders exercised for cash their January 2021 Inducement Warrants to purchase 6,117,509 shares of our common stock in exchange for new warrants, or the June 2021 Inducement Warrants, on substantially the same terms as the January 2021 Inducement Warrants, except as set forth in the following sentence, to purchase up to 1,529,379 shares of our common stock, which was equal to 25% of the number of shares of our common stock issued upon exercise of the January 2021 Inducement Warrants, or the June 2021 Inducement Transaction. The purchase price of the June 2021 Inducement Warrants was $0.125 per share underlying each June 2021 Inducement Warrant, and the June 2021 Inducement Warrants have an exercise price of $16.50 per share and expire on December 31, 2026. We received aggregate gross proceeds of $39.1 million from the exercise of the January 2021 Inducement Warrants and the sale of the June 2021 Inducement Warrants.

We also filed a registration statement on Form S-3 covering the resale of the shares of our common stock issued or issuable upon the exercise of the June 2021 Inducement Warrants which was declared effective on July 7, 2021.

Equity Distribution Agreement

On July 2, 2021, we entered into an Equity Distribution Agreement with JMP and RBCCM, under which we may offer and sell, from time to time at our sole discretion, shares of our common stock having an aggregate offering price of up to $75.0 million through JMP and RBCCM as our sales agents. The issuance and sale, if any, of our common stock under the Equity Distribution Agreement will be made pursuant to a registration statement on Form S-3.

We filed a registration statement on Form S-3 covering the sale of the shares of our common stock up to $350.0 million, $75.0 million of which was allocated to the sales of the shares of common stock issuable under the Equity Distribution Agreement. The Form S-3 was declared effective on July 12, 2021. As of December 31, 2021, no shares have been issued or sold under the Equity Distribution Agreement.

Share Repurchase Program

On December 20, 2021, the Company initiated a share repurchase program, or the Share Repurchase Program, pursuant to which the Company may repurchase up to $50 million of shares of its common stock through December 31, 2023. Capital allocation to the Share Repurchase Program will be based on a variety of factors, including our business results, the receipt of royalties and sales milestones under the KP415 License Agreement, and potentially other sources of non-dilutive capital that may become available to the Company. Repurchases will be made in compliance with Rule 10b-18 of the Securities Exchange Act of 1934, as amended, subject to a variety of factors, including the market price of the Company’s common stock, general market and economic conditions and applicable legal requirements. The exact number of shares to be repurchased by the Company is not guaranteed and the program may be suspended, modified, or discontinued at any time without prior notice. As of December 31, 2021, the Company has repurchased 320,161 shares of its common stock for approximately $2.8 million under the Share Repurchase Program.

Third-Party Agreements

KP415 License Agreement

In September 2019, we entered into the KP415 License Agreement with Commave. Under the KP415 License Agreement, we granted to Commave an exclusive, worldwide license to develop, manufacture and commercialize our product candidates containing SDX and d-MPH, including AZSTARYS, KP484, and, at the option of Commave, KP879, KP922 or any other product candidate developed by us containing SDX and developed to treat ADHD or any other central nervous system disorder, or the Additional Product Candidates and, collectively with AZSTARYS and KP484, the Licensed Product Candidates.

Under the terms of the KP415 License Agreement, we granted Commave an exclusive, worldwide license to commercialize and develop the Licensed Product Candidates; provided that such license shall apply to an Additional Product Candidate only if Commave exercises its option under the KP415 License Agreement related thereto. If Commave exercises its option related to any Additional Product Candidate under the KP415 License Agreement, the parties are obligated to negotiate in good faith regarding the economic terms of such Additional Product Candidate. We also granted to Commave a right of first refusal to acquire, license or commercialize any Additional Product Candidate, with such right of first refusal expiring upon the acceptance of a new drug application for such Additional Product Candidate. We also granted Commave a right of first negotiation and a right of first refusal, subject to specified exceptions, for any assignment of our rights under the KP415 License Agreement.

Pursuant to the KP415 License Agreement, Commave paid us an upfront payment of $10.0 million and agreed to pay up to $63.0 million in milestone payments upon the occurrence of specified regulatory milestones related to AZSTARYS, including FDA approval and specified conditions with respect to the final approval label, and KP484. In addition, Commave agreed to make additional payments upon the achievement of specified U.S. sales milestones of up to $420.0 million in the aggregate. Further, Commave will pay us quarterly, tiered royalty payments ranging from a percentage in the high single digits to the mid-twenties of Net Sales (as defined in the KP415 License Agreement) in the United States and a percentage in the low to mid-single digits of Net Sales in each country outside the United States, in each case subject to specified reductions under certain conditions as described in the KP415 License Agreement. Commave is obligated to make such royalty payments on a product-by-product basis until expiration of the Royalty Term (as defined in the KP415 License Agreement) for the applicable product.

In April 2021, we entered into Amendment No. 1 to the KP415 License Agreement, or the KP415 Amendment. Pursuant to the KP415 Amendment, we agreed to modify the compensation terms of the KP415 License Agreement. In addition, the KP415 Amendment increased the total remaining future regulatory and sales milestone payments related to AZSTARYS up to an aggregate of $590.0 million in payments upon the occurrence of specified regulatory milestones related to AZSTARYS and upon the achievement of specified U.S. net sales milestones. Further, Commave agreed to pay us quarterly, tiered royalty payments ranging from a percentage in the high single digits to the mid-twenties of Net Sales (as defined in the KP415 License Agreement) in the United States and a percentage in the low to mid-single digits of Net Sales in each country outside the United States, in each case subject to specified reductions under certain conditions, including with respect to the final approval label, as described in the KP415 License Agreement. Commave is obligated to make such royalty payments on a product-by-product basis until expiration of the royalty term for the applicable product.

Pursuant to the KP415 Amendment, we also agreed to modify Commave's right of first refusal such that our product candidate, KP922, is no longer subject to Commave' right of first refusal to acquire, license or commercialize any Additional Product Candidate. Commave's right of first refusal shall only apply to any Additional Product Candidate which contains SDX, with such right of first refusal expiring upon the acceptance of an NDA for such Additional Product Candidate containing SDX.

Commave agreed to be responsible for and reimburse us for all of development, commercialization and regulatory expenses for the Licensed Product Candidates, subject to certain limitations as set forth in the KP415 License Agreement.

The KP415 License Agreement will continue on a product-by-product basis (i) until expiration of the royalty term for the applicable Licensed Product Candidate in the United States and (ii) perpetually for all other countries. Commave may terminate the KP415 License Agreement at its convenience upon prior written notice prior to regulatory approval of any Licensed Product Candidate or upon prior written notice after regulatory approval of any Licensed Product Candidate. We may terminate the KP415 License Agreement in full if Commave, any of its sublicensees or any of its or their affiliate challenges the validity of any Licensed Patent (as defined in the KP415 License Agreement) and such challenge is not required under a court order or subpoena and is not a defense against a claim, action or proceeding asserted by us. Either party may terminate the KP415 License Agreement (i) upon a material breach of the KP415 License Agreement by the other party, subject to a cure period, or (ii) if the other party encounters bankruptcy or insolvency. Upon a Serious Material Breach (as defined in the KP415 License Agreement) by us, subject to a cure period, Commave may choose not to terminate the KP415 License Agreement and instead reduce the milestone and royalty payments owed to us. Upon termination, all licenses and other rights granted by us to Commave pursuant to the KP415 License Agreement would revert to us. During the term of the KP415 License Agreement, we may not develop or commercialize any Competing Product (as defined in the KP415 License Agreement).

APADAZ License Agreement

In October 2018, we entered into the APADAZ License Agreement with KVK pursuant to which we have granted an exclusive license to KVK to conduct regulatory activities for the manufacture and commercialization of APADAZ in the United States. We have retained the right to license the international commercial rights to APADAZ to one or more collaborators outside of the U.S. We will be solely responsible for all development activities except for regulatory activities relating to APADAZ in the United States.

Pursuant to the APADAZ License Agreement, KVK has agreed to pay us certain payments and cost reimbursements of an estimated $3.4 million, which includes a payment of $2.0 million within 10 days of the achievement of a specified milestone related to the initial formulary adoption of APADAZ, or the Initial Adoption Milestone. In addition, KVK has agreed to make additional payments to us upon the achievement of specified sales milestones of up to $53.0 million in the aggregate. Further, we and KVK will share the quarterly net profits of APADAZ by KVK in the United States at specified tiered percentages, ranging from us receiving 30% to 50% of net profits, based on the amount of net sales on a rolling four quarter basis. We are responsible for a portion of commercialization and regulatory expenses for APADAZ until the Initial Adoption Milestone is achieved, after which KVK will be responsible for all expenses incurred in connection with commercialization and maintaining regulatory approval in the United States.

The APADAZ License Agreement also established a joint steering committee, which monitors progress of the commercialization of APADAZ.

Other Third-Party Agreements

Under our March 2012 termination agreement with Aquestive, Aquestive has the right to receive a royalty amount equal to 10% of any value generated by AZSTARYS, KP484, KP879 or KP1077, and any product candidates containing SDX, including royalty payments on any license of AZSTARYS, KP484, KP879 or KP1077, the sale of AZSTARYS, KP484, KP879 or KP1077 to a third party, the commercialization of AZSTARYS, KP484, KP879 or KP1077 and the portion of any consideration that is attributable to the value of AZSTARYS, KP484, KP879 or KP1077 and paid to us or our stockholders in a change of control transaction.

In July 2020, we entered into the Corium Consulting Agreement under which Corium and Commave, respectively, engaged us to guide the product development and regulatory activities for certain current and potential future products in their portfolio, as well as continue supporting preparation for the potential commercial launch of AZSTARYS. Under the Corium Consulting Agreement, we are entitled to receive payments from Corium of up to $15.6 million, $13.6 million of which will be paid in quarterly installments through March 31, 2022. The remaining $2.0 million was conditioned upon the approval by the FDA of the NDA for Corium's product candidate, ADLARITY. This $2.0 million was earned in the first quarter of 2022. Corium also agreed to be responsible for and reimburse us for all development, commercialization and regulatory expenses incurred as part of the performance of the consulting services.

Components of our Results of Operations

Revenue

Our commercial revenue is, and will be, primarily derived from sales of AZSTARYS, APADAZ or any of our product candidates for which we obtain regulatory approval. We expect that our only source of revenues will be through payments arising from our license agreements with Commave and KVK, and through any other future arrangements related to one of our product candidates. To date, we have generated revenue from the KP415 License Agreement, reimbursement of out-of-pocket third-party costs, and the performance of consulting services. We cannot guarantee that either Commave will be able to successfully commercialize AZSTARYS or our product candidates covered under the KP415 License Agreement, or KVK will be able to successfully commercialize APADAZ, or that we will ever receive any payments under the APADAZ License Agreement from commercial sales of APADAZ or any future payments under the APADAZ License Agreement. We also do not know when, if ever, any other product candidate will be commercially available.

Royalties and Direct Contract Acquisition Costs

The components of our royalties and direct contract acquisition costs are royalties and expenses directly attributable to revenue. To date, we have generated revenue from the KP415 License Agreement, reimbursement of out-of-pocket third-party costs and the performance of consulting services. In connection with the KP415 License Agreement, we paid Aquestive a royalty equal to 10% of the upfront license payment and all regulatory milestone and royalty payments. In addition, we capitalized incremental costs directly attributable to the KP415 License Agreement, these costs are amortized to royalties and contract costs as revenue is recognized.

Operating Expenses

We classify our operating expenses into three categories: research and development expenses, general and administrative expenses and severance expense. Salaries and personnel-related costs, including benefits, bonuses and stock-based compensation expense, comprise a significant component of each of these expense categories. We allocate expenses associated with our facilities, information technology costs and depreciation and amortization between research and development expenses and general and administrative expenses based on employee headcount and the nature of work performed by each employee.

Research and Development Expense

Research and development expense consists of expenses incurred while performing research and development activities to discover and develop potential product candidates. This includes conducting preclinical studies and clinical trials, manufacturing development efforts and activities related to regulatory filings for product candidates. We recognize research and development expenses as they are incurred. Our research and development expense primarily consists of:

- salaries and personnel-related costs, including benefits and any stock-based compensation, for our scientific personnel performing research and development activities;
- costs related to executing preclinical studies and clinical trials;
- fees paid to consultants and other third parties who support our product candidate development;
- other costs in seeking regulatory approval of our products; and
- allocated facility-related costs and overhead.

We typically use our employee, consultant and infrastructure resources across our development programs. We track outsourced development costs by product candidate or development program, but we do not allocate personnel costs, other internal costs or external consultant costs to specific product candidates or development programs.

The following table summarizes our research and development costs for the years ended December 31, 2021, and 2020 (in thousands):

	Year Ended December 31,	
	2021	**2020**
Outsourced development costs directly identified to programs:		
KP879	$ 1,647	$ -
KP1077	86	-
AZSTARYS	68	726
APADAZ	234	444
KP484	1	5
Total outsourced development costs directly identified to programs	2,036	1,175
Research and development costs not directly identified to programs:		
Personnel costs including cash compensation, benefits and stock-based compensation	5,801	5,645
Facilities costs	525	523
Other costs	1,799	1,500
Total research and development costs not directly allocated to programs	8,125	7,668
Total research and development expenses	$ 10,161	$ 8,843

We anticipate that our research and development expense will fluctuate for the foreseeable future as we continue our efforts to advance the development of our product candidates, subject to the availability of additional funding. In accordance with the KP415 License Agreement, Commave has also agreed to be responsible and reimburse us for all of development, commercialization and regulatory expenses for the Licensed Product Candidates, subject to certain limitations as set forth in the KP415 License Agreement.

The successful commercialization of AZSTARYS, APADAZ, and any of our product candidates that may be approved and the development of our product candidates is highly uncertain. At this time, we cannot reasonably estimate the nature, timing or costs required to commercialize AZSTARYS, APADAZ, or any of our product candidates, if approved, and complete the remaining development of any product candidates. This is due to the numerous risks and uncertainties associated with the commercialization and development of our products and product candidates.

General and Administrative Expense

General and administrative expense consists primarily of salaries and personnel-related costs, including employee benefits and any stock-based compensation, for employees performing functions other than research and development. This includes personnel in executive, finance, human resources and administrative support functions. Other general and administrative expenses include facility-related costs not otherwise allocated to research and development expense, professional fees for auditing, tax and legal services, expenses associated with obtaining and maintaining patents, consulting costs and costs of our information systems.

We expect that our general and administrative expense will fluctuate as we continue to operate as a public reporting company and continue to develop our product candidates. We believe that these fluctuations will likely include costs related to the hiring of additional personnel and fees for outside consultants, lawyers and accountants. We also expect to continue to incur costs to comply with corporate governance, internal control, investor relations, disclosure and similar requirements applicable to public reporting companies.

Severance Expense

Severance expense in 2020 consisted of severance payments and stock-based compensation paid to our former chief business officer who ceased to serve in this role in February 2020. We had no severance expense in 2021.

Other (Expense) Income

Other (expense) income consists primarily of non-cash costs associated with fair value adjustments to our derivative and warrant liability, amortization of debt issuance costs and debt discount to interest expense and a net loss on extinguishment of debt arising primarily from the debt payoff in the first quarter of 2021. Other (expense) income also includes interest expense incurred on our outstanding borrowings as well as interest and other income consisting primarily of interest earned on investments. These items are unrelated to our core business and thus are recognized as other (expense) income in our statements of operations.

Income Tax (Expense) Benefit

Income tax (expense) benefit consists of refundable state income tax credits and adjustments to those credits. To date, we have not been required to pay U.S. federal or state income taxes because we have not generated taxable income. We have received state income tax credits related to our qualified research activities in Iowa. These refundable state income tax credits and adjustments to those credits are recognized as income tax expense (benefit) in our statements of operations, and to the extent the refundable state income tax credits are not collected as of period end, they are recognized as accounts receivable in our balance sheets.

Results of Operations

Comparison of the Years Ended December 31, 2021 and 2020 (in thousands):

	Year Ended December 31,		Period-to-Period Change
	2021	2020	
Revenue	$ 28,650	$ 13,288	$ 15,362
Operating expenses:			
Royalty and direct contract acquisition costs	2,059	1,305	754
Research and development	10,161	8,843	1,318
General and administrative	8,701	7,921	780
Severance expense	-	828	(828)
Total operating expenses	20,921	18,897	2,024
Income (loss) from operations	7,729	(5,609)	13,338
Other (expense) income:			
Loss on extinguishment of debt	(16,096)	-	(16,096)
Interest expense related to amortization of debt issuance costs and discount	(150)	(2,305)	2,155
Interest expense on principal	(226)	(4,785)	4,559
Fair value adjustment related to derivative and warrant liability	(26)	(184)	158
Interest and other income, net	248	89	159
Total other (expense) income	(16,250)	(7,185)	(9,065)
Loss before income taxes	(8,521)	(12,794)	4,273
Income tax (expense) benefit	(34)	34	(68)
Net loss	$ (8,555)	$ (12,760)	$ 4,205

Net Loss

Net loss for the year ended December 31, 2021, was $8.6 million compared to net loss of $12.8 million for the year ended December 31, 2020. The change was primarily attributable to a change in income (loss) from operations of $13.3 million and a decrease in net interest expense and other items of $7.0 million, partially offset by a loss on extinguishment of debt of $16.1 million. In accordance with the January 2021 and June 2021 Inducement Transactions, for the year ended December 31, 2021, we recognized deemed dividends of $37.4 million and $16.9 million, respectively. These deemed dividends represent the difference between the grant date fair value of the respective inducement warrants and the purchase price of the respective inducement warrants. These deemed dividends are added to net loss to arrive at net loss attributable to common stockholders on the statements of operations.

Revenue

Revenue for the year ended December 31, 2021, was $28.7 million, an increase of $15.4 million compared to revenue of $13.3 million for the year ended December 31, 2020. The increase was primarily attributable to an increase in revenue from the KP415 License Agreement of approximately $13.3 million and an increase in revenue from the Corium Consulting Agreement of approximately $3.8 million, partially offset by a decrease in other consulting agreements of approximately $1.7 million.

Royalties and Contract Costs

Royalties and direct contract acquisition costs for the year ended December 31, 2021, was $2.1 million, an increase of $0.8 million compared to royalty and direct contract acquisition costs of $1.3 million for the year ended December 31, 2020. The increase was primarily attributable to an increase in royalty payments related to revenue from the KP415 License Agreement of approximately $1.5 million, partially offset by a decrease in the recognition of capitalized direct contract acquisition costs related to entering into the KP415 License Agreement of approximately $0.7 million.

Research and Development

Research and development expenses increased by $1.3 million, from $8.8 million for the year ended December 31, 2020, to $10.2 million for the year ended December 31, 2021. This increase was primarily attributable to an increase in third-party research and development costs of $0.9 million, an increase in other research and development costs of $0.3 million and an increase in personnel-related costs of $0.1 million.

General and Administrative

General and administrative expenses increased by $0.8 million, from $7.9 million for the year ended December 31, 2020, to $8.7 million for the year ended December 31, 2021. This increase was primarily attributable to an increase in professional fees of $0.5 million and an increase in personnel-related costs of $0.3 million.

Severance Expense

Severance expense of $0.8 million was recognized for the year ended December 31, 2020, due to the termination of our chief business officer in February 2020. Severance expense is comprised of $0.4 million of personnel and other related charges and $0.4 million of stock compensation expense related to the acceleration of vesting on certain stock options upon employee termination. We had no severance expense for the year ended December 31, 2021.

Other (Expense) Income

Other (expense) income increased by $9.1 million, from $7.2 million for the year ended December 31, 2020, to $16.3 million for the year ended December 31, 2021. This period-to-period increase in expense was primarily attributable to a loss on extinguishment of debt of $16.1 million during the first quarter of 2021, partially offset by a decrease in net interest expense and other items of $7.0 million.

Liquidity and Capital Resources

Sources of Liquidity

Through December 31, 2021, we have funded our research and development and operating activities primarily through the issuance of debt, private placements of redeemable convertible preferred stock and the sale of common stock in our initial public offering, at-the-market offering, underwritten public offerings, through our purchase agreements with Lincoln Park Capital LLC, or Lincoln Park, and from revenue received under the KP415 License Agreement, the Corium Consulting Agreement and other consulting arrangements. As of December 31, 2021, we had cash, cash equivalents and long-term investments of $127.8 million.

To date, we have generated revenue from the KP415 License Agreement, reimbursement of out-of-pocket third-party costs, and the performance of consulting services.

In July 2020, we entered into the Corium Consulting Agreement under which Corium and Commave, respectively, engaged us to guide the product development and regulatory activities for certain current and potential future products in their portfolio, as well as continue supporting preparation for the potential commercial launch of AZSTARYS. Under the Corium Consulting Agreement, we are entitled to receive payments from Corium of up to $15.6 million, $13.6 million of which will be paid in quarterly installments through March 31, 2022. The remaining $2.0 million was conditioned upon the approval by the FDA of the NDA for Corium's product candidate, ADLARITY. This $2.0 million was earned in the first quarter of 2022. Corium also agreed to be responsible for and reimburse us for all development, commercialization and regulatory expenses incurred as part of the performance of the consulting services.

In February 2020, we entered into the 2020 ELOC Agreement, with Lincoln Park, which provided that, upon the terms and subject to the conditions and limitations set forth therein, we may sell to Lincoln Park up to $4.0 million of shares of our common stock, from time to time over the 12-month term of the 2020 ELOC Agreement, and upon execution of the 2020 ELOC Agreement we issued an additional 19,289 shares of our common stock to Lincoln Park as commitment shares in accordance with the closing conditions contained within the 2020 ELOC Agreement. In May 2020, we reached the maximum allowable shares to be issued under the registration statement on Form S-3 covering the sale from time to time of up to $80.0 million of our common stock, preferred stock, and debt and/or warrants, which was declared effective by the SEC on April 10, 2020, of 579,260 shares and therefore we cannot issue additional shares under the 2020 ELOC Agreement. Through May 2020, we sold 559,971 shares of common stock (exclusive of the 19,289 commitment shares previously issued to Lincoln Park) under the 2020 ELOC Agreement for approximately $2.3 million in gross proceeds.

We have had recurring negative net operating cash flows and we anticipate that we may continue to incur minimal positive net cash flows from operations or negative net cash flows from operations for at least the next several years. We expect that our sources of revenue will be through payments arising from our license agreements with Commave and KVK, or through our Corium Consulting Agreement, and other potential consulting arrangements and any other future arrangements related to one of our product candidates.

In January 2021, we completed the Public Offering. The aggregate gross proceeds to us from the Public Offering, including from the exercises by the underwriter of its over-allotment option, totaled $52.4 million, before deducting underwriting discounts and commissions and offering expenses payable by us.

In January 2021, we entered into the January 2021 Inducement Letters. We received aggregate gross proceeds of $44.0 million from the exercise of the Existing Warrants by the Exercising Holders and the sale of the January 2021 Inducement Warrants.

In April 2020, we received proceeds of $0.8 million from a loan, or the PPP Loan, under the Paycheck Protection Program, or the PPP, of the Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act, which we used to retain current employees, maintain payroll and make lease and utility payments. In May 2021, we received notice from the U.S. Small Business Administration that our PPP Loan was forgiven in full, including all principal and interest.

In June 2021, we entered into the June 2021 Inducement Letters. We received aggregate gross proceeds of $39.1 million for the exercise of the select January 2021 Inducement Warrants by the select warrant holders and the sale of the June 2021 Inducement Warrants.

In July 2021, we entered into the Equity Distribution Agreement with JMP and RBCCM under which we may offer and sell, from time to time at our sole discretion, shares of our common stock, having an aggregate offering price of up to $75.0 million through JMP and RBCCM as its sales agents. The issuance and sale, if any, of our common stock the Equity Distribution Agreement will be made pursuant to a registration statement on Form S-3.

Convertible Debt

As of December 31, 2021, we had no convertible notes outstanding. During the first quarter of 2021 we repaid in full the convertible notes and terminated the Deerfield Facility Agreement.

Deerfield Facility Agreement

In June 2014, we entered into the Deerfield Facility Agreement as a $60.0 million multi-tranche credit facility with Deerfield. At the time we entered into the Deerfield Facility Agreement, we borrowed the first tranche, which consisted of a $15.0 million term note and the $10.0 million convertible note, or the Deerfield Convertible Note.

The Deerfield Convertible Note originally bore interest at 9.75% per annum but was subsequently reduced to 6.75%. Interest accrued on the outstanding balance under the Deerfield Convertible Note was due quarterly in arrears. We originally had to repay one-third of the outstanding principal amount of the Deerfield Convertible Note on the fourth and fifth anniversaries of the Deerfield Facility Agreement (June 2018 and June 2019). In June 2018, Deerfield agreed to convert approximately $3.3 million of the principal amount then due, plus approximately $0.2 million of accrued interest, into 37,410 shares of our common stock. In September 2019, we entered into an amendment with Deerfield in order to (i) reduce the interest rate applicable under the Deerfield Facility Agreement from 9.75% to 6.75%, (ii) provide for "payment in kind" of interest on the Loans (as defined in the Deerfield Facility Agreement), and (iii) defer the Loan payments due pursuant to the Deerfield Facility Agreement until June 1, 2020. In December 2019, we entered into another amendment with Deerfield in order to (i) defer the Loan payments due pursuant to the Deerfield Facility Agreement until March 31, 2021, and (ii) allow for the entries of additional debt and debt holders under the Deerfield Facility Agreement (as discussed in more detail below).

Pursuant to the Deerfield Facility Agreement, we issued to Deerfield 1,923,077 shares of our Series D redeemable convertible preferred stock, or Series D Preferred, as consideration for the loans provided to us thereunder. Upon closing of our initial public offering, these shares of Series D Preferred reclassified into 256,410 shares of our common stock (effected for the 16-for-1 reverse stock split in December 2020, this became 16,025 shares of our common stock).

We also issued to Deerfield the Deerfield Warrant to purchase 14,423,076 shares of our Series D Preferred at an initial exercise price of $0.78 per share. Upon closing of our initial public offering, this warrant converted into a warrant exercisable for 1,923,077 shares of our common stock at an exercise price of $5.85 per share (effected for the 16-for-1 reverse stock split in December 2020, this became a warrant exercisable for 120,192 shares of our common stock at an exercise price of $93.60 per share). Upon the closing of the January 2021 Inducement Transaction, in accordance with the anti-dilution provisions contained within the Deerfield Warrant, the exercise price of the Deerfield Warrant was reduced to $46.25 per share. Further, upon closing of the June 2021 Inducement Transaction, in accordance with the anti-dilution provisions contained within the Deerfield Warrant, the exercise price of the Deerfield Warrant was reduced to $38.34 per share.

2021 Notes

In February 2016, we issued our 5.50% Senior Convertible Notes due 2021, or the 2021 Notes, in aggregate principal amount of $86.3 million. The 2021 Notes were originally issued to Cowen and Company and RBCCM LLC as representatives of the several initial purchasers, who subsequently resold the 2021 Notes to qualified institutional buyers in reliance on the exemption from registration provided by Rule 144A under the Securities Act.

The 2021 Notes were issued pursuant to an indenture, dated as of February 9, 2016, between us and U.S. Bank National Association, as trustee. Interest on the 2021 Notes was payable semi-annually in cash in arrears on February 1 and August 1 of each year, beginning on August 1, 2016, at a rate of 5.50% per year. The 2021 Notes matured on February 1, 2021, unless earlier converted or repurchased.

In multiple exchanges occurring in October 2018, December 2019 and January 2020, all outstanding 2021 Notes were exchanged by the holders thereof for either shares of our common stock or the December 2019 Notes and January 2020 Note issued under the terms of the Deerfield Facility Agreement.

2021 Note Exchange Effected in January 2020

In January 2020, we entered into a January 2020 Exchange Agreement, or the January 2020 Exchange Agreement, with M. Kingdon Offshore Master Fund, LP, or Kingdon. Under the January 2020 Exchange Agreement, we issued the January 2020 Note as a senior secured convertible note in the aggregate principal amount of approximately $3.0 million in exchange for the cancellation of an aggregate of approximately $3.0 million of principal amount and accrued interest of the 2021 Note then owned by Kingdon. Upon entering into the January 2020 Exchange Agreement, we agreed to pay Kingdon an interest payment of approximately $37,000, which represents 50% of the accrued and unpaid interest, as of January 13, 2020, on Kingdon's 2021 Note. The remainder of such interest was included in the principal amount of the January 2020 Note.

The January 2020 Note was issued with substantially the same terms and conditions as the December 2019 Notes (as amended by the amendment described in more detail below).

In connection with entering into the January 2020 Exchange Agreement, we entered into an Amendment to Facility Agreement and December 2019 Notes and Consent, or the December 2019 Note Amendment, with the December 2019 Holders that, among other things, (i) amended the December 2019 Notes to (a) reduce the Conversion Price (as defined in the December 2019 Notes) from $273.76 to $93.60 per share, (b) increased the Floor Price (as defined in the December 2019 Notes) from $6.08 to $9.328 per share, and (ii) amended Deerfield Facility Agreement to (x) provide for Kingdon to join the Deerfield Facility Agreement as a Lender (as defined in the Deerfield Facility Agreement) and (y) provide that the 2020 Note and shall constitute a "Senior Secured Convertible Note" (as defined in the Deerfield Facility Agreement) for purposes of the Deerfield Facility Agreement and other Transaction Documents (as defined in the Deerfield Facility Agreement). As a result of the December 2019 Note Amendment, the December 2019 Notes were convertible, by their terms, into an aggregate of 11,753,016 shares of our common stock, assuming a conversion date of January 13, 2020 (effected for the 16-for-1 reverse stock split in December 2020, this became 734,562 shares of our common stock).

Debt Restructuring

In December 2020, we entered into the December 2020 Exchange Agreement, which was amended on December 24, 2020. Pursuant to the December 2020 Exchange Agreement, (a) we made the Debt Payment as a cash pre-payment of a portion of principal amount of the Senior Secured Notes and the Deerfield Note to the Deerfield Lenders, DSC and Kingdon, or, collectively, the Holders, in an aggregate amount equal to approximately $30.3 million; and (b) we issued 31,476.98412 shares of our Series B-2 Preferred Stock and warrants exercisable for 3,632,019 shares of our common stock, or the Exchange Warrants, in exchange for the cancellation of a portion of the principal amount of the Senior Secured Notes and Deerfield Note owned by the Holders, with such transaction referred to as the Exchange. Immediately following the completion of the Exchange and Debt Payment, the aggregate balance of principal and accrued interest remaining outstanding under the Facility Notes was approximately $7.6 million.

The December 2020 Exchange Agreement amended the Senior Secured Notes to provide that the failure of our common stock to remain listed on an eligible securities market will not constitute a "Major Transaction" unless such failure occurs after March 31, 2023.

The December 2020 Exchange Agreement amended the Deerfield Facility Agreement in order to, among other things, (i) extend the maturity date of the Senior Secured Notes and the Deerfield Note to March 31, 2023, (ii) provide for cash payments of interest on the Loans (as defined in the Deerfield Facility Agreement) for the periods following July 1, 2021, and (iii) provide for specified prepayment terms on the Loans.

The December 2020 Exchange Agreement amended that certain Amended and Restated Investors' Rights Agreement, dated as of February 19, 2015, or the IRA, by and among us, Deerfield and the other parties signatory thereto in order to, among other things, add Deerfield Special Situations Fund, L.P. as a party thereto and to give effect to the issuance of the Exchange Warrants and our registration obligations under the December 2020 Exchange Agreement (as described in more detail below).

The Exercise Warrants are subject to substantially the same terms and conditions as the Existing Warrants, with an exercise price equal to the exercise price per share of the Existing Warrants and will provide that the Holders will be limited from exercising such Exchange Warrants if, as a result of such exercise, such holders (together with certain affiliates and "group" members of such holders) would beneficially own more than 4.985% of the total number of shares of our common stock then issued and outstanding.

Pursuant to the terms of the December 2020 Exchange Agreement, we also filed a registration statement to register for resale under the Securities Act the shares of common stock issuable upon conversion of the shares of Series B-2 Preferred Stock and exercise of the Exchange Warrants.

In connection with the December 2020 Exchange Agreement, we filed an Amended and Restated Certificate of Designation of Preferences, Rights and Limitations of Series B-2 Convertible Preferred Stock, or the Amended and Restated Series B-2 Certificate of Designation, with the Secretary of State of the State of Delaware, setting forth the preferences, rights and limitations of the Series B-2 Preferred Stock.

The shares of Series B-2 Preferred Stock were convertible into an aggregate of 4,842,690 shares of our common stock. Each share of Series B-2 Preferred Stock had an aggregate stated value of $1,000 and was convertible into shares of our common stock at a per share price equal to $6.4999 (subject to adjustment to reflect stock splits and similar events).

In March 2021, all shares of Series B-2 Preferred Stock converted into common stock.

In June 2021, we filed with the Secretary of State of the State of Delaware a Certificate of Elimination of Series B-2 Convertible Preferred Stock, eliminating from our Certificate of Incorporation the 31,480 shares designated as Series B-2 Convertible Preferred Stock.

December 2020 Exchange Agreement Amendment

On January 12, 2021, in connection with the transactions contemplated by the December 2020 Exchange Agreement, we entered into an Amendment to Senior Secured Convertible Notes and Amendment to Warrant, or the January 2021 Amendment, with the Deerfield Holders. The January 2021 Amendment modified certain specified terms of (i) the Facility Notes and (ii) the Deerfield Warrant to, among other things, exclude the transactions contemplated by the December 2020 Exchange Agreement and issuance of securities pursuant to the Underwriting Agreement from the anti-dilution provisions of the Facility Notes and the Deerfield Warrant.

Series B-2 Preferred Stock

On January 11, 2021, as a condition to the closing of the transactions contemplated by the December 2020 Exchange Agreement, we filed an Amended and Restated Certificate of Designation of Preferences, Rights and Limitations of Series B-2 Convertible Preferred Stock, or the Series B-2 Certificate of Designation, with the Secretary of State of the State of Delaware, setting forth the preferences, rights and limitations of the Series B-2 Preferred Stock.

Payoff of Facility Agreement Notes and Termination of Facility Agreement

On February 8, 2021, we entered into a payoff letter with the Facility Agreement Note Holders, pursuant to which we agreed to pay off and thereby terminate the Facility Agreement.

Pursuant to the payoff letter, we paid a total of $8.0 million to the Facility Agreement Note Holders, representing the principal balance, accrued interest outstanding and a prepayment fee in repayment of our outstanding obligations under the Facility Agreement.

Pursuant to the payoff letter, all outstanding indebtedness and obligations owed by us to the Facility Agreement Note Holders under the Facility Agreement have been paid in full. The Facility Agreement and the notes thereunder, as well as the security interests in the assets of us securing the Facility Agreement and note obligations, have been terminated. The Facility Agreement Note Holders will retain the warrants previously issued to them.

Cash Flows

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

	Year Ended December 31,		Period-to Period Change
	2021	2020	
Net cash provided by (used in) operating activities	$ 10,439	$ (1,939)	$ 12,378
Net cash used in investing activities	(15,524)	(33)	(15,491)
Net cash provided by financing activities	113,109	2,739	110,370
Net increase in cash, cash equivalents and restricted cash	$ 108,024	$ 767	$ 107,257

Operating Activities

For the year ended December 31, 2021, net cash provided by operating activities of $10.4 million consisted of $19.4 million in adjustments for non-cash items, partially offset by a net loss of $8.6 million and $0.4 million in changes in working capital. The adjustments for non-cash items primarily consisted of a loss on extinguishment of debt of $16.1 million, stock-based compensation expense of $2.4 million, amortization of debt issuance costs and debt discount of $0.2 million, a change in the fair value adjustment related to derivative and warrant liabilities of $0.1 million and $0.6 million related to depreciation, amortization and other items. The changes in working capital consisted of $1.1 million related to a change in accounts payable and accrued expenses, $0.3 million related to a change in operating lease liabilities and $0.8 million related to a change in prepaid expenses and other assets, partially offset by $1.1 million related to a change in accounts and other receivables, $0.1 million related to a change in operating lease right-of-use assets and $0.7 million related to a change in other liabilities. Net loss was primarily attributable to a loss on extinguishment of debt and our spending on research and development programs and operating costs, partially offset by revenue received under the KP415 License Agreement and the Corium Consulting Agreement.

For the year ended December 31, 2020, net cash used in operating activities of $1.9 million consisted of a net loss of $12.8 million, partially offset by $0.4 million in changes in working capital and $10.4 million in adjustments for non-cash items. Net loss was primarily attributable to our spending on research and development programs and operating costs, partially offset by revenue received under the KP415 License Agreement and the Corium Consulting Agreement. The changes in working capital consisted of $0.9 million related to a change in accounts payable and accrued expenses, $0.2 million related to a change in prepaid expenses and other assets and $0.3 million related to operating lease right-of-use assets and other liabilities, partially offset by $0.7 million related to a change in accounts and other receivables and $0.3 million related to operating lease liabilities. The adjustments for non-cash items primarily consisted of stock-based compensation expense of $2.5 million, non-cash interest expense of $4.7 million, amortization of debt issuance costs and debt discount of $2.3 million, loss on sublease and disposal of property and equipment of $0.3 million, a change in the fair value adjustment related to derivative and warrant liabilities of $0.2 million and $0.4 million related to depreciation, amortization and other items.

Investing Activities

For the year ended December 31, 2021, net cash used in investing activities was $15.5 million, which was attributable to purchases of property and equipment of $0.1 million and purchases of long-term investments of $15.4 million.

For the year ended December 31, 2020, net cash used in investing activities was $33,000, which was attributable to purchases of property and equipment.

Financing Activities

For the year ended December 31, 2021, net cash provided by financing activities was $113.1 million, which was primarily attributable to net proceeds from sales of our common stock in the Public Offering of $49.3 million, net proceeds from the January 2021 Inducement Transaction of $41.4 million, net proceeds from the June 2021 Inducement Transaction of $36.8 million and net proceeds from the exercise of common stock warrants of $30.8 million, partially offset by payment for repurchase of shares of $2.8 million, payment of offering costs of $1.3 million, repayment of principal on finance lease liabilities of $0.2 million, payment of debt issuance costs of $2.9 million, and repayment of principal on convertible notes of $37.9 million.

For the year ended December 31, 2020, net cash provided by financing activities was $2.7 million, which was primarily attributable to proceeds from sales of our common stock under the 2020 ELOC of $2.3 million and proceeds from the PPP loan of $0.8 million, partially offset by repayment of principal on finance lease liabilities of $0.2 million and payment of debt issuance and deferred offerings costs of $0.1 million.

Future Funding Requirements

Based on our current operating forecast, we believe that our existing cash, cash equivalents and long-term investments will be sufficient to fund our operations through and beyond 2025. This estimate does not include our projected revenue, a portion of which is based on royalties from commercial sales and upon the achievement of milestones in the KP415 License Agreement and the APADAZ License Agreement. Certain of the milestones are associated with regulatory matters that are outside our control.

Potential near-term sources of additional funding include:

- any revenues generated under either the KP415 License Agreement or the APADAZ License Agreement;
- any consulting services revenue or short-term milestone payments generated under the KP415 License Agreement;
- any consulting services revenue or short-term milestone payments generated under the Corium Consulting Agreement; and
- any consulting services revenue generated under other potential consulting arrangements.

We cannot guarantee that we will be able to generate sufficient proceeds from any of these potential sources to fund our operating expenses.

To date, we have generated revenue from the KP415 License Agreement, reimbursements of out-of-pocket third-party costs and the performance of consulting services. We expect that, for the foreseeable future, our only sources of revenues will be through payments arising from the KP415 License Agreement, the APADAZ License Agreement, the Corium Consulting Agreement, or through other potential consulting arrangements and any other future arrangements related to one of our product candidates. While we have entered into the APADAZ License Agreement to commercialize APADAZ in the United States, and entered into the KP415 License Agreement to develop, manufacture and commercialize AZSTARYS and KP484, we cannot guarantee that this, or any strategy we adopt in the future, will be successful. For instance, we received milestone payments under the KP415 License Agreement, but we cannot guarantee that we will earn any additional milestone or royalty payments under this agreement in the future. We also expect to continue to incur additional costs associated with operating as a public company.

The COVID-19 pandemic has caused and continues to cause major disruptions to businesses and markets worldwide. We cannot predict what the long-term effects of this pandemic and the resulting economic disruptions may have on our liquidity and results of operations. The extent of the effect of the COVID-19 pandemic on our liquidity and results of operations will depend on a number of future developments, including the duration, spread and intensity of the pandemic, and governmental, regulatory and private sector responses, all of which are uncertain and difficult to predict. The COVID-19 pandemic may make it more difficult for us to enroll patients in any future clinical trials or cause delays in the regulatory approval of our product candidates. A portion of our projected revenue is based upon the achievement of milestones in the KP415 License Agreement associated with regulatory matters that may be impacted by the COVID-19 pandemic. As a result, we cannot predict what, if any, impact that the COVID-19 pandemic may have on our ability to achieve these milestones. The economic uncertainty surrounding the COVID-19 pandemic may also dramatically reduce our ability to secure debt or equity financing necessary to support our operations. We are unable to currently estimate the financial effect of the pandemic. If the pandemic continues to be a severe worldwide crisis, it could have a material adverse effect on our business, results of operations, financial condition, and cash flows.

We have based our estimates of our cash needs and cash runway on assumptions that may prove to be wrong, and we may use our available capital resources sooner than we currently expect and we cannot guarantee that we will be able to generate sufficient proceeds from the KP415 License Agreement, the APADAZ License Agreement, the Corium Consulting Agreement, and other potential consulting arrangements or other funding transactions to fund our operating expenses. To meet any additional cash requirements, we may seek to sell additional equity or convertible securities that may result in dilution to our stockholders, issue additional debt or seek other third-party funding, including potential strategic transactions, such as licensing or collaboration arrangements. Because of the numerous risks and uncertainties associated with the development and commercialization of product candidates and products, we are unable to estimate the amounts of increased capital outlays and operating expenditures necessary to complete the commercialization and development of our partnered product or product candidates, should they obtain regulatory approval.

Critical Accounting Policies and Significant Judgements and Estimates

This management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which we have prepared in accordance with accounting principles generally accepted in the United States. The preparation of our financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of our financial statements, as well as the reported revenues and expenses during the reported periods. We evaluate these estimates and judgements on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgements about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are more fully described in Note B to our audited financial statements appearing elsewhere in this Annual Report on Form 10-K, we believe that the following accounting policies are critical to the process of making significant judgments and estimates in the preparation of our financial statements and understanding and evaluating our reported financial results.

Accrued Expenses

We enter into contractual agreements with third-party vendors who provide research and development, manufacturing, and other services in the ordinary course of business. Some of these contracts are subject to milestone-based invoicing and services are completed over an extended period of time. We record liabilities under these contractual commitments when an obligation has been incurred. This accrual process involves reviewing open contracts and purchase orders, communicating with our applicable personnel to identify services that have been performed and estimating the level of service performed and the associated cost when we have not yet been invoiced or otherwise notified of actual cost. The majority of our service providers invoice us monthly in arrears for services performed. We make estimates of our accrued expenses as of each balance sheet date based on the facts and circumstances known to us. We periodically confirm the accuracy of our estimates with the service providers and make adjustments if necessary. Examples of estimated accrued expenses include:

- fees paid to CROs in connection with preclinical and toxicology studies and clinical trials;
- fees paid to investigative sites in connection with clinical trials;
- fees paid to contract manufacturers in connection with the production of our raw materials, drug substance and product candidates; and
- professional fees.

We base our expenses related to clinical trials on our estimates of the services received and efforts expended pursuant to contracts with multiple research institutions and CROs that conduct and manage clinical trials on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. Payments under some of these contracts depend on factors such as the successful enrollment of patients and the completion of clinical trial milestones. In accruing service fees, we estimate the time period over which services will be performed and the level of effort expended in each period. If the actual timing of the performance of services or the level of effort varies from our estimate, we will adjust the accrual accordingly. If we do not identify costs that we have begun to incur or if we underestimate or overestimate the level of these costs, our actual expenses could differ from our estimates.

Stock-Based Compensation

We record the fair value of stock options issued as of the grant date as compensation expense. We recognize compensation expense over the requisite service period, which is equal to the vesting period. Stock-based compensation expense has been reported in our statements of operations as follows (in thousands):

	Year Ended December 31,	
	2021	**2020**
Research and development	$ 914	$ 937
General and administrative	1,522	1,134
Severance expense	-	420
Total stock-based compensation	$ 2,436	$ 2,491

Determination of the Fair Value of Stock-Based Compensation Grants

We calculate the fair value of stock-based compensation arrangements using the Black-Scholes option-pricing model. The Black-Scholes option-pricing model requires the use of subjective assumptions, including the expected volatility of our common stock, the assumed dividend yield, the expected term of our stock options, the risk-free interest rate for a period that approximates the expected term of our stock options and the fair value of the underlying common stock on the date of grant. In applying these assumptions, we considered the following factors:

- historically we have not had sufficient experience to estimate the volatility of our common stock. As such, we calculated the expected volatility based on reported data for selected similar publicly traded companies for which the historical information is available, or peer volatility, and blended it with our historical volatility, or leverage-adjusted peer volatility. For the purpose of identifying peer companies, we consider characteristics such as industry, length of trading history, similar vesting terms and in-the-money option status. We utilized this leverage-adjusted peer volatility for grants prior to the initial public offering, as well as grants within the two-year period immediately following the initial public offering. For grants after the second anniversary of the initial public offering we utilized our historical volatility to determine the expected volatility;

- the assumed dividend yield is based on our expectation of not paying dividends for the foreseeable future;

- we determine the average expected life of “plain vanilla” stock options based on the simplified method in accordance with SEC Staff Accounting Bulletin Nos. 107 and 110, as our common stock to date has been publicly traded for a limited amount of time. We expect to use the simplified method until we have sufficient historical exercise data to provide a reasonable basis upon which to estimate expected term. For options that are not considered “plain vanilla,” such as those with exercise prices in excess of the fair market value of the underlying stock, we use an expected life equal to the contractual term of the option;

- we determine the risk-free interest rate by reference to implied yields available from U.S. Treasury securities with a remaining term equal to the expected life assumed at the date of grant; and

- we estimate forfeitures based on our historical analysis of actual stock option forfeitures.

We account for stock-based compensation arrangements with directors and consultants that contain only service conditions for vesting using a fair value approach. The grant date fair value of these options is measured using the Black-Scholes option pricing model reflecting the same assumptions as applied to employee options in each of the reported periods, other than the expected life, which is assumed to be the remaining contractual life of the option.

The following summarizes the assumptions used for estimating the fair value of stock options granted to employees for the periods indicated:

	Year Ended December 31,	
	2021	**2020**
Risk-free interest rate	0.92% - 1.55%	0.38% - 1.65%
Expected term (in years)	5.50 - 10.00	5.50 - 10.00
Expected volatility	96.91% - 102.57%	89.49% - 93.07%
Expected dividend yield	0	0

Fair Value of Financial Instruments

We have a common stock warrant issued to Deerfield, put options embedded within those Deerfield warrants, and common stock warrants issued to KVK that meet the definition of derivative financial instruments and are accounted for as derivatives. The fair value of the common stock warrant issued to Deerfield, and put options embedded within the Deerfield Warrants are based on Monte Carlo simulations, while the common stock warrant issued to KVK is valued using a probability-weighted Black-Scholes option pricing model. These derivatives are fair valued at each reporting period.

The derivative liability for the Deerfield common stock warrant was $288,000 and $230,000 at December 31, 2021 and 2020, respectively. The derivative liability for the put options embedded within the Deerfield common stock warrant was $18,000 and $25,000 at December 31, 2021 and 2020, respectively. The derivative liability for the KVK common stock warrant was $24,000 and $49,000 at December 31, 2021 and 2020, respectively. A 10% increase in the enterprise value would result in an increase of $50,000 in the estimated fair value of the Deerfield common stock warrant, an increase of $3,000 in the estimated fair value of the put options embedded within the Deerfield common stock warrant and an increase of $4,000 in the estimated fair value of the KVK common stock warrant at December 31, 2021. Upon exercise of the warrants, we will adjust the associated derivative liability to fair value with any changes recorded in other (expense) income. At such time, such derivative liability will also be reclassified to additional paid-in capital, and no further revaluations will be necessary.

Utilization of Net Operating Loss Carryforwards and Research and Development Credits

As of December 31, 2021, we had federal net operating loss, or NOL, carryforwards of approximately $233.3 million, due to prior period losses, $138.1 million of which, if not utilized, will begin to expire in 2027 and $95.1 million with no expiration. We also had research and development credit carryforwards of $3.8 million with expiration dates ranging from 2027 to 2037 and $2.6 million with no expiration. As of December 31, 2021, we maintain a full valuation allowance over our deferred tax assets for financial reporting purposes.

In accordance with Section 382 of the Code, a change in equity ownership of greater than 50% within a three-year period results in an annual limitation on a company’s ability to utilize its NOL carryforwards created during the tax periods prior to the change in ownership. We performed a Section 382 ownership change analysis in 2017 and determined that we experienced an ownership change in 2010, which resulted in a portion of our net operating loss carryforwards being subject to an annual limitation under Section 382 through 2012. No other ownership changes or limitations on our historical net operating loss carryforwards were noted through the year ended December 31, 2017. In addition, we may have already experienced an ownership change, or may experience an ownership changes in the future, as a result of shifts in our stock ownership, including as a result of the conversion of our outstanding convertible debt or as a result of changes in our stock ownership. If we determine that an ownership change has occurred and our ability to use our historical net operating loss carryforwards is materially limited, it would harm our future operating results by increasing our future tax obligations.

Recent Accounting Pronouncements

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments—Credit Losses (Topic 326)—Measurement of Credit Losses on Financial Instruments*, or ASU 2016-13, which replaces the incurred loss impairment methodology with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. This update applies to all entities holding financial assets and net investment in leases that are not accounted for at fair value through net income. The amendments affect loans, debt securities, trade receivables, net investments in leases, off-balance-sheet credit exposures, reinsurance receivables, and any other financial assets not excluded from the scope that have the contractual right to receive cash. This guidance is effective for financial statements issued for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. The adoption of ASU 2016-13 did not have a material impact on our financial statements and disclosures.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820)—Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement*, or ASU 2018-13, which modifies the disclosure requirements on fair value measurements in Topic 820, Fair Value Measurement, based on the concepts in the FASB Concepts Statement, Conceptual Framework for Financial Reporting—Chapter 8: Notes to Financial Statements, which the FASB finalized on August 28, 2018, including the consideration of costs and benefits. This update applies to all entities that are required, under existing U.S. GAAP, to make disclosures about recurring or nonrecurring fair value measurements. This guidance is effective for financial statements issued for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. The amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurement uncertainty should be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. The adoption of ASU 2018-13 did not have a material impact on our financial statements and disclosures.

In August 2020, the FASB issued ASU 2020-06, *Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40); Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*, or ASU 2020-06, which addresses issues identified as a result of the complexities associated with applying U.S. GAAP for certain financial instruments with characteristics of liabilities and equity. This update addresses, among other things, the number of accounting models for convertible debt instruments and convertible preferred stock, targeted improvements to the disclosures for convertible instruments and earnings-per-share, or EPS, guidance and amendments to the guidance for the derivatives scope exception for contracts in an entity's own equity, as well as the related EPS guidance. This update applies to all entities that issue convertible instruments and/or contracts in an entity's own equity. This guidance is effective for financial statements issued for fiscal years beginning after December 15, 2021, and interim periods within those fiscal years. FASB specified that an entity should adopt the guidance as of the beginning of its annual fiscal year. We do not believe the adoption of ASU 2020-06 will have a material impact on our financial statements and disclosures.

In May 2021, the FASB issued ASU 2021-04, *Earnings Per Share (Topic 260), Debt— Modifications and Extinguishments (Subtopic 470-50), Compensation—Stock Compensation (Topic 718), and Derivatives and Hedging— Contracts in Entity's Own Equity (Subtopic 815-40); Issuer's Accounting for Certain Modifications or Exchanges of Freestanding Equity-Classified Written Call Options, a consensus of the FASB Emerging Issues Task Force*, or ASU 2021-04, which aims to clarify and reduce diversity in issuer's accounting for modifications or exchanges of freestanding equity-classified written call options that remain equity classified after modification or exchange. This update applies to all entities that issue freestanding written call options that are classified in equity. This guidance is effective for financial statements issued for fiscal years beginning after December 15, 2021, and interim periods within those fiscal years. FASB specified that an entity should adopt the guidance as of the beginning of its annual fiscal year. We do not believe the adoption of ASU 2021-04 will have a material impact on our financial statements and disclosures.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Not applicable.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The financial statements required by this Item 8 are set forth beginning in Item 15 of this report and are incorporated herein by reference.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

Not applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Limitations on effectiveness of controls and procedures

In designing and evaluating our disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our chief executive officer and our chief financial officer, evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2021. Based on the evaluation of our disclosure controls and procedures as of December 31, 2021, our chief executive officer and our chief financial officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Management's Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over our financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(e) under the Exchange Act. Under the supervision and with the participation of our management, including our chief executive officer and chief financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting. Management has used the framework set forth in the report entitled "*Internal Control – Integrated Framework (2013)"* published by the Committee of Sponsoring Organizations of the Treadway Commission to evaluate the effectiveness of our internal control over financial reporting. Based on its evaluation, management has concluded that our internal control over financial reporting was effective as of December 31, 2021, the end of our most recent fiscal year.

Our independent registered public accounting firm has not performed an evaluation of our internal control over financial reporting during any period in accordance with the provisions of the Sarbanes-Oxley Act. For as long as we remain a non-accelerated filer, we intend to take advantage of the exemption permitting us not to comply with the requirement that our independent registered public accounting firm provide an attestation on the effectiveness of our internal control over financial reporting.

Changes in Internal Control over Financial Reporting

In connection with the evaluation required by Rules 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the most recent fiscal quarter, we noted a material change in our internal control over financial reporting where we entered into an agreement with a third-party financial accounting advisory firm to provide professional services on an as-needed basis. These services could range from technical accounting assistance to staff loan opportunities dependent upon our needs. Except as described above, there have been no changes in the Company's internal control over financial reporting that occurred during the three months ended December 31, 2021, that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

ITEM 9C. DISCLOSURES REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

EXECUTIVE OFFICERS AND NON-EMPLOYEE DIRECTORS

The following table sets forth information concerning our executive officers and non-employee directors, including their ages as of December 31, 2021:

Name	Age	Position
Executive Officers		
Travis C. Mickle, Ph.D.	48	President, Chief Executive Officer and Director
Richard W. Pascoe	57	Executive Chairman
Sven Guenther, Ph.D.	49	Executive Vice President, Research and Development
R. LaDuane Clifton, CPA	49	Chief Financial Officer, Secretary and Treasurer
Non-Employee Directors		
Tamara A. Seymour	63	Director
Matthew R. Plooster	40	Director
Joseph B. Saluri	55	Director
David S. Tierney, M.D.	58	Director

Executive Officers

Travis C. Mickle, Ph.D. is a co-founder of our company and has served as a member of our Board since our inception in 2006 and chairman of our Board from November 2014 to November 2021. Dr. Mickle served as our president and chief scientific officer from 2006 to October 2010, and has served as our president and chief executive officer since October 2010. Prior to founding our company, Dr. Mickle spent five years with New River Pharmaceuticals, a specialty pharmaceutical company, where he was a senior research scientist from 2001 to 2002, the director of chemistry from 2002 to 2003 and the director of drug discovery and CMC from 2003 to 2005. Dr. Mickle received his Ph.D. degree from the University of Iowa and his B.A. degree from Simpson College. Our Board believes that Dr. Mickle's leadership of our company since its inception, knowledge of our company as founder and experience with pharmaceutical companies provides him with the qualifications and skills to serve as a director of our company.

Richard W. Pascoe has served as a director of KemPharm since January 2014 and as KemPharm's executive chairman since November 2021. From January 2019 to November 2021, Mr. Pascoe served as the president and chief executive officer and on the board of directors of Histogen Inc., a biologics company. From March 2013 to January 2019, Mr. Pascoe was the chief executive officer and director of Apricus Biosciences. From August 2008 to March 2013, Mr. Pascoe was the president and chief executive officer and a director of Pernix Sleep, Inc. (formerly known as Somaxon Pharmaceuticals, Inc.), a specialty pharmaceutical company. Prior to Pernix, from 2005 to 2008, Mr. Pascoe worked for ARIAD Pharmaceuticals, Inc., a specialty pharmaceutical company, where he was most recently senior vice president and chief operating officer. Mr. Pascoe also serves as a director of Seelos Therapeutics, Inc, a specialty pharmaceutical company. Mr. Pascoe received his B.S. degree from the United States Military Academy at West Point. Our Board believes that Mr. Pascoe's experience as a pharmaceutical company executive provides him with the qualifications and skills to serve as a director of our company.

Sven Guenther, Ph.D. joined our company as our group leader of research in 2007 and served as a member of our board of directors from April 2012 to April 2015, and has served as our executive vice president, research and development since May 2014. Prior to joining our company, Dr. Guenther served as a research scientist for New River Pharmaceuticals from 2003 to 2007. Dr. Guenther received his Ph.D. degree from the University of Iowa.

R. LaDuane Clifton, CPA has served as our chief financial officer since June 2015 and as our secretary and treasurer since February 2016. Previously, Mr. Clifton served as our vice president of finance and corporate controller from April 2015 to June 2015. Prior to joining our company, Mr. Clifton served in a variety of positions with The LGL Group, Inc., a publicly held producer of industrial and commercial products and services, from August 2009 to February 2015, including chief financial officer, secretary and treasurer from December 2012 to February 2015, chief accounting officer and secretary from March 2010 to December 2012, and corporate controller from August 2009 to March 2010. From August 2008 to August 2009, Mr. Clifton served as the chief financial officer of a21, Inc., a publicly held holding company with businesses in stock photography and the online retail and manufacturer of framed art, and as its corporate controller from March 2007 to August 2008. Mr. Clifton served in a variety of finance and medical cost analysis roles with Aetna, Inc., a publicly held provider of healthcare benefits, from August 1991 to August 2004. Mr. Clifton was an auditor with KPMG, LLP from August 2004 to March 2007. Mr. Clifton received his B.B.A. and M.B.A. degrees from the University of North Florida and is a certified public accountant in the state of Florida.

Non-Employee Directors

Tamara A. Seymour has served as a director and audit committee chair of KemPharm since August 2021. Ms. Seymour has more than 30 years of life sciences industry experience including 20 years as a chief financial officer. Her extensive experience includes leading multiple private and public financings and M&A transactions as well as leading the finance, investor relations, human resources, administration and managed care functions. She currently serves as a board member and audit committee chair of Artelo Biosciences, Inc. and Kintara Therapeutics, Inc., both publicly-traded clinical-development stage companies. Ms. Seymour served on the board of directors of Beacon Discovery, Inc. from 2018 until their acquisition in March 2021. Ms. Seymour was interim CFO of Immunic, Inc., a publicly-traded clinical-stage drug development company in 2019. She served as CFO of Signal Genetics, Inc. (now Viridian Therapeutics, Inc.), a publicly-traded molecular diagnostics company, from 2014 to 2017, HemaQuest Pharmaceuticals, Inc., a venture-backed clinical-stage drug development company, from 2010 to 2014 and Favrille, Inc. (now MMR Global, Inc.), a publicly-traded clinical-stage drug development company, from 2001 to 2009. Earlier in her career, she spent eight years in public accounting with Deloitte & Touche LLP and PricewaterhouseCoopers LLP. Ms. Seymour is a Certified Public Accountant (inactive). She received an MBA, emphasis in Finance, from Georgia State University, and a BBA, emphasis in Accounting, from Valdosta State University. Our Board believes that Ms. Seymour's experience in corporate management, finance and life science provides her with the qualifications and skills to serve as a director of our company.

Matthew R. Plooster has served as a director of our company since March 2011. Mr. Plooster co-founded Bridgepoint Investment Banking, a division of Bridgepoint Holdings, LLC and Bridgepoint Holdings NE, LLC, where he has served as Managing Director since March 2012. Previously, Mr. Plooster worked as an investment banker at DeWaay Investment Banking from October 2010 to March 2012, Morgan Stanley from August 2009 to November 2009 and Deutsche Bank from 2004 to July 2009. Mr. Plooster received his Certificate in Business Excellence from Columbia Business School and his B.A. degree from the University of Chicago. Our Board believes that Mr. Plooster’s experience as an investor in and transaction experience with healthcare companies, as well as other board of director’s experience, provides him with the qualifications and skills to serve as a director of our company.

Joseph B. Saluri has served as a director of our company since January 2014. Mr. Saluri currently serves as the chief executive officer and chairman of the board of BlueAllele, LLC, a start-up biotechnology company located in Oakdale, Minnesota. Mr. Saluri previously served as general counsel and executive vice president for Calyxt, Inc. from June 2017 to March 2018. Prior to his employment with Calyxt, Inc., Mr. Saluri served as general counsel for Stine Seed Company and its affiliates from July 1999 to March 2017. Mr. Saluri practiced as an attorney and solicitor at law with Nicholas Critelli Associates, PC, in Des Moines, Iowa and London, England from June 1993 to June 1999. Mr. Saluri served as a director of Newlink Genetics Corporation, a public biopharmaceutical company from May 2010 to July 2017. Mr. Saluri received his J.D. degree from Drake University Law School and his B.S.B.A. degree from Drake University. Our Board believes that Mr. Saluri’s extensive legal background and experience in corporate management, finance and investor relations provides him with the qualifications and skills to serve as a director of our company.

David S. Tierney has served as a director of our company since March 2015. Since December 2020, Dr. Tierney has served as president and chief executive officer of Aramis Biosciences, a clinical-stage immuno-ophthalmology biopharmaceutical company. From February 2020 until December 2020, Dr. Tierney served as chief executive officer of Pharma Two B, Ltd., a privately held company developing innovative therapeutics based on previously approved drugs for Parkinson disease. From September 2019 until January 2020, Dr. Tierney served as president and chief executive officer of BiopharmX, a dermatology drug development company. From March 2014 until March 2018, Dr. Tierney was president chief executive officer of Icon Bioscience, Inc., a privately held ophthalmology company, which was merged into Psivida, Inc to form Eyepoint Pharmaceuticals. From January 2013 until March 2014, Dr. Tierney was a venture partner at Signet Healthcare Partners, a New York City based life science private equity fund. Dr. Tierney served as president and chief operating officer and as a member of the board of directors of Oceana Therapeutics, Inc., a private specialty pharmaceutical company, from its organization in 2008 through its sale to Salix Pharmaceuticals, Ltd. in December 2011. Dr. Tierney served as the president and chief executive officer and as a member of the board of directors of Valera Pharmaceuticals, Inc., a specialty pharmaceutical company, between August 2000 and April 2007, when Valera completed a merger with lndevus Pharmaceuticals, Inc. From January 2000 to August 2000, Dr. Tierney served as president of Biovail Technologies, a division of Biovail Corporation, a Canadian drug delivery company. From March 1997 to January 2000, Dr. Tierney was senior vice president of drug development at Roberts Pharmaceutical Corporation and from December 1989 to March 1997, Dr. Tierney was employed by Elan Corporation, a pharmaceutical company, in a variety of management positions. Dr. Tierney is also a director of Catalyst Pharmaceuticals, Inc. and Bimeda, Inc., a private global veterinary pharmaceutical company. Dr. Tierney received his medical degree from the Royal College of Surgeons in Dublin, Ireland and was subsequently trained in internal medicine. Our Board believes that Dr. Tierney's experience as a pharmaceutical company executive provides him with the qualifications and skills to serve as a director of our company.

Family Relationships

There are no family relationships among any of our executive officers or directors.

DELINQUENT SECTION 16(A) REPORTS

Section 16(a) of the Exchange Act requires the Company's directors and executive officers (as defined under Rule 16a-1(f) under the Exchange Act), and persons who own more than ten percent of a registered class of the Company's equity securities, or collectively, the Reporting Persons, to file with the SEC initial reports of beneficial ownership and reports of changes in beneficial ownership of equity securities of the Company.

To the Company's knowledge, based solely on its review of the copies of such forms filed with the SEC and upon written representations of the Reporting Persons received by us, the Company believes, during the year ended December 31, 2021, with the exception of a late Form 4 on November 23, 2021 by Dr. Mickle reporting one transaction, all Section 16(a) filing requirements applicable to its Reporting Persons were complied with.

AUDIT COMMITTEE

We have a separately-designated standing audit committee, or the Audit Committee, consisting of Joseph B. Saluri, Tamara A. Seymour and David S. Tierney, with Ms. Seymour serving as chairperson. Our Board has determined that Ms. Seymour is an "audit committee financial expert" as defined by SEC rules and regulations and that Ms. Seymour qualifies as independent under rules of the Nasdaq Stock Market, or Nasdaq, applicable to directors generally and under Nasdaq rules and Rule 10A-3 of the Exchange Act specific to audit committee members.

CODE OF ETHICS

We have adopted the KemPharm, Inc. Code of Business Conduct and Ethics, or the Code of Conduct, that applies to all officers, directors and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. The Code of Conduct is available on our website at www.kempharm.com. If we make any substantive amendments to the Code of Conduct or grant any waiver from a provision of the Code of Conduct to any executive officer or director, we will promptly disclose the nature of the amendment or waiver on our website.

ITEM 11. EXECUTIVE COMPENSATION

EXECUTIVE COMPENSATION

Our chief executive officer, executive chairman and two of our other most highly compensated executive officers for the year ended December 31, 2021 are listed below:

- Travis C. Mickle, Ph.D., our president, chief executive officer and director;
- Richard W. Pascoe., our executive chairman;
- Sven Guenther, Ph.D., our executive vice president, research and development; and
- R. LaDuane Clifton, CPA, our chief financial officer, secretary and treasurer:

We refer to these executive officers as our named executive officers.

Summary Compensation Table

The following table presents the compensation awarded to, earned by or paid to each of our named executive officers for the years ended December 31, 2021, and 2020, as applicable.

Name and Principal Position	Year	Salary ($)	Bonus ($)	Non-Equity Incentive Plan Compensation ($) (1)	Option Awards ($) (2)	All Other Compensation ($) (3)	Total ($)
Travis C. Mickle, Ph.D.	2021	561,946	—	199,582	1,883,931	11,600	2,657,059
President, chief executive officer and chairman of the board	2020	530,450	—	291,748	134,381	11,400	967,979
Richard W. Pascoe	2021	119,814(4)	—	50,000	540,401(5)	2,267	712,482
Executive Chairman							
Sven Guenther, Ph.D.	2021	398,982	—	85,022	584,888	13,261	1,082,153
Executive vice president, research and development	2020	374,792	10,000	124,285	51,193	13,061	563,331
R. LaDuane Clifton, CPA	2021	370,993	—	92,234	589,929	13,056	1,056,212
Chief financial officer, secretary and treasurer	2020	350,200	—	134,827	51,193	4,894	541,114

(1) The amount for 2020 and 2021 reflect non-equity incentive plan awards paid in 2021 and 2022, for performance during 2020 and 2021, respectively.

(2) The amounts reflect the full grant date fair value for awards granted during 2021 and 2020, respectively. The grant date fair value was computed in accordance with ASC Topic 718, *Compensation—Stock Compensation*. Unlike the calculations contained in our financial statements, this calculation does not give effect to any estimate of forfeitures related to service-based vesting, but assumes that the executive will perform the requisite service for the award to vest in full. The assumptions we used in valuing options are described in Note L to our audited financial statements included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

(3) See "Narrative to Summary Compensation Table—Other Compensation" for a description of the items in this column.

(4) The amount reflects salary of $56,667 Mr. Pascoe earned as executive chairman of our company for the period commencing November 10, 2021 and ending December 31, 2021, and $63,147 in stipends awarded for Mr. Pascoe's service on our Board, as our lead independent director, as the chairman of our Audit Committee and as a member of our Compensation Committee from January 1, 2021 through November 9, 2021 prior to being appointed executive chairman.

(5) The amount reflects options granted to Mr. Pascoe in connection with his appointment as our executive chairman with a $360,101 full grant date fair value and options granted to Mr. Pascoe in his capacity as a director with a $180,300 full grant date fair value.

Narrative to Summary Compensation Table

We review compensation at least annually for all employees, including our executives. In setting executive base salaries and bonuses and granting equity incentive awards, we consider compensation for comparable positions in the market, the historical compensation levels of our executives, individual performance as compared to our expectations and objectives, our desire to motivate our employees to achieve short- and long-term results that are in the best interests of our stockholders, and a long-term commitment to our company. We do not target a specific competitive position or a specific mix of compensation among base salary, bonus or long-term incentives. The compensation committee of our Board, or the Compensation Committee, has historically determined our executives' compensation. Our Compensation Committee typically reviews and discusses management's proposed compensation with the chief executive officer for all executives other than the chief executive officer. Based on those discussions and its discretion, our Compensation Committee, without members of management present, discusses and ultimately approves the compensation of our executive officers.

Annual Base Salary

Our named executive officers' base salaries are reviewed periodically by our Compensation Committee, and adjustments may be made upon the approval of the Compensation Committee.

Effective March 1, 2020, our Compensation Committee approved an increase in Dr. Guenther's annual base salaries to $376,620.

Effective March 16, 2021, our Compensation Committee approved an increase in Dr. Mickle's, Dr. Guenther's and Mr. Clifton annual base salaries to $570,234, $404,867, and $376,465, respectively.

Effective February 1, 2022, our Compensation Committee approved an increase in Dr. Mickle's, Mr. Pascoe, Dr. Guenther's, and Mr. Clifton annual base salary to $592,000, $425,000, $417,013, and $414,112, respectively.

Annual Bonus and Non-Equity Incentive Plan Awards

Our Board and Compensation Committee may make cash bonus and non-equity incentive plan awards in their discretion.

In February 2022, our Compensation Committee approved cash awards to Dr. Mickle, Mr. Pascoe, Dr. Guenther, and Mr. Clifton of $199,582, $50,000, $85,022, and $92,234, respectively, for their services in 2021. These award amounts were in recognition for Dr. Mickle's, Mr. Pascoe, Dr. Guenther's and Mr. Clifton's performance during the indicated year based on corporate and individual objectives and are reflected in the "Non-Equity Incentive Plan Awards" column of the Summary Compensation Table above for 2021.

Long-Term Incentives

Our 2014 equity incentive plan, or the 2014 Plan, authorizes us to make grants to eligible recipients of non-qualified stock options, incentive stock options and other stock-based awards. All of our awards under this plan have been in the form of stock options.

We typically grant stock options at the start of employment to each executive and our other employees. Through December 31, 2021, we have not maintained a policy of granting additional equity on an annual basis, but we have retained discretion to provide additional targeted grants in appropriate circumstances.

We award stock options to employees who are not officers of the Company on the date the Single-Person Non-Officer Stock Award Subcommittee of the Compensation Committee (as defined below) approves the grant. In 2015, the Compensation Committee formed a single-person non-officer stock award committee (the "Single-Person Non-Officer Stock Award Subcommittee"), currently composed of our chief executive officer, Travis C. Mickle, to which it delegated authority to grant, without any further action required by the Compensation Committee, stock awards to employees who are not officers of the Company, provided that such grants are made in accordance with guidelines established by the Compensation Committee. If employees are officers of the Company we award stock options on the date the Compensation Committee approves the grant. We set the option exercise price as the last reported sale price of our common stock on The Nasdaq Stock Market on the date of grant. In addition, unless we specifically state otherwise, historical stock prices in this annual report on Form 10-K have been adjusted to reflect a 1-for-16 reverse stock split of our common stock effected on December 23, 2020.

In August 2021, we granted Dr. Mickle an option to purchase 263,743 shares of common stock. The exercise price of this option is $9.06 per share, which equaled the closing sale price per share of our common stock as reported on The Nasdaq Stock Market on the date of grant. The shares subject to this option will vest in equal annual installments over a period of four years. All shares underlying this option will vest in full and become immediately exercisable upon a change of control of the Company or if Dr. Mickle is terminated without cause or resigns for good reason (each as defined in Dr. Mickle’s employment agreement, discussed under “Employment Arrangements and Potential Payments upon Termination of Employment” herein).

In November 2021, we granted Mr. Pascoe an option to purchase 100,000 shares of common stock. The exercise price of this option is $9.10 per share, which equaled the closing sale price per share of our common stock as reported on The Nasdaq Stock Market on the date of grant. Of the shares underlying the option, 50% of such shares will vest upon the closing of the earlier of (x) a "Change in Control" (as defined in the 2014 Plan) of the Company or (y) a transformative business development transaction, as determined in the discretion of the board of directors (together, the "Transactions"); provided that the definitive agreement for either of the Transactions is executed on or prior to November 10, 2022, and Mr. Pascoe is, immediately prior to the closing of the Change in Control or transformative business development transaction, as applicable, still serving as Executive Chairman or as another executive officer; and the remaining 50% of such shares will vest in equal annual installments over a period of four years. All unvested time-based shares underlying this option will vest in full and become immediately exercisable upon a Change in Control (as defined in the 2014 Plan). In addition, this option will vest in full and become immediately exercisable if Mr. Pascoe is terminated without cause or resigns for good reason (each as defined in Mr. Pascoe’s employment agreement, discussed under “Employment Arrangements and Potential Payments upon Termination of Employment” herein), and, with respect to the portion of the option that vests based on the attainment of performance goals, the performance goals will be deemed to have met as of the date of termination.

In August 2021, we granted Dr. Guenther an option to purchase 81,716 shares of common stock. The exercise price of this option is $9.06 per share, which equaled the closing sale price per share of our common stock as reported on The Nasdaq Stock Market on the date of grant. The shares subject to this option will vest in equal annual installments over a period of four years. All shares underlying this option will vest in full and become immediately exercisable upon a change of control of the Company or if Dr. Guenther is terminated without cause or resigns for good reason (each as defined in Dr. Guenther’s employment agreement, discussed under “Employment Arrangements and Potential Payments upon Termination of Employment” herein).

In August 2021, we granted Mr. Clifton an option to purchase 82,423 shares of common stock. The exercise price of this option is $9.06 per share, which equaled the closing sale price per share of our common stock as reported on The Nasdaq Stock Market on the date of grant. The shares subject to this option will vest in equal annual installments over a period of four years. All shares underlying this option will vest in full and become immediately exercisable upon a change of control of the Company or if Mr. Clifton is terminated without cause or resigns for good reason (each as defined in Mr. Clifton’s employment agreement, discussed under “Employment Arrangements and Potential Payments upon Termination of Employment” herein).

Other Compensation

Other amounts shown in the "All Other Compensation" column in the Summary Compensation Table relate to Company contributions to the 401(k) plan, premiums we paid for life and disability insurance policies and tax gross-up payments.

Except for the benefits described above, we do not provide perquisites or personal benefits to our named executive officers. We do, however, pay the premiums for medical, dental and vision insurance, and payments for certain qualified dependent care benefits for all of our employees, including our named executive officers.

Employment Arrangements and Potential Payments upon Termination of Employment

In May 2014, we entered into an employment agreement with Dr. Mickle, under which Dr. Mickle serves as our president and chief executive officer. Under this agreement, upon the execution of a release of claims, Dr. Mickle is eligible to receive severance benefits in specified circumstances.

In the event that we terminate Dr. Mickle without cause or he resigns for good reason, Dr. Mickle will be entitled to receive (a) an amount equal to 18 months of his annual base salary, less applicable deductions, payable in accordance with our normal payroll schedule, (b) a pro rata bonus award payable on the first regularly scheduled pay day following the 60th day after his termination, (c) 18 months of continued health coverage and (d) full vesting of his outstanding equity awards, except that if such termination occurs within 60 days before, upon or within one year following a sale that constitutes a "change in control event" as defined in Section 409A of the Internal Revenue Code of 1986, as amended, or the Code, then in lieu of the payments described in clause (a) Dr. Mickle will be entitled to receive a lump sum payment equal to one and one-half times the sum of his annual salary plus his target annual bonus on the first regularly scheduled pay day following the 60th day after his termination. In the event that we terminate Dr. Mickle with cause, Dr. Mickle resigns without good reason, or his employment is terminated due to mutual agreement, death or disability, then Dr. Mickle will not be entitled to receive severance benefits. Under the terms of Dr. Mickle's employment agreement, if we enter into any change of control, all then unvested shares subject to outstanding options shall become fully vested and immediately exercisable immediately prior to such change in control.

The following definitions have been adopted in Dr. Mickle's employment agreement:

- "cause" means (a) executive is convicted of, or pleads nolo contendere to, a crime constituting a misdemeanor involving dishonesty or moral turpitude or any crime constituting a felony, (b) executive neglects, refuses or fails to perform executive's material duties, (c) executive commits a material act of dishonesty or otherwise engages in or is guilty of gross negligence or willful misconduct in the performance of executive's duties or (d) executive materially breaches the provisions of any written non-competition, non-disclosure or non-solicitation agreement, or any other agreement with us provided, however, that executive shall have 15 days following a notice of termination specifying a condition under clause (b), (c) or (d) constituting cause to cure such condition; and

- "good reason" means (a) material diminution by us of the executive's authority, duties or responsibilities the duration of which is greater than 15 days and which is not the result of his acts or omissions which constitute cause, (b) a material change in the geographic location at which the executive must perform services under the agreement, (c) a material diminution in his base salary which is not the result of an across-the-board reduction in base salaries of other senior executives of the Company or (d) any action or inaction that constitutes a material breach by us of the agreement, including our failure to pay any amounts due to the executive or our failure to obtain from a successor the express assumption of the agreement.

In November 2021, we entered into an employment agreement with Mr. Pascoe, under which Mr. Pascoe serves as our executive chairman. Under this agreement, upon the execution of a release of claims, Mr. Pascoe is eligible to receive severance benefits in specified circumstances.

In the event that we terminate Mr. Pascoe without cause or he resigns for good reason, Mr. Pascoe will be entitled to receive (a) an amount equal to 12 months of his annual base salary, less applicable deductions, payable in accordance with our normal payroll schedule, (b) a pro rata bonus award payable on the first regularly scheduled pay day following the 60th day after his termination, (c) 12 months of continued health coverage and (d) full vesting of his outstanding equity awards, except that if such termination occurs within 60 days before, upon or within one year following a sale that constitutes a "change in control event" as defined in Section 409A of the Internal Revenue Code of 1986, as amended, or the Code, then in lieu of the payments described in clause (a) Mr. Pascoe will be entitled to receive a lump sum payment equal to one and one-half times the sum of his annual salary plus his target annual bonus on the first regularly scheduled pay day following the 60th day after his termination; in lieu of the payment described in clause (b) Mr. Pascoe will be entitled to receive an amount equal to his target annual bonus; and the health coverage continuation period described in clause (c) will be extended to 18 months. In the event that we terminate Mr. Pascoe with cause, Mr. Pascoe resigns without good reason, or his employment is terminated due to mutual agreement, death or disability, then Mr. Pascoe will not be entitled to receive severance benefits. Under the terms of Mr. Pascoe's employment agreement, if we consummate a Change in Control (as defined in the 2014 Plan), all then unvested time-based equity awards shall become fully vested and immediately exercisable immediately prior to such change in control.

The following definitions have been adopted in Mr. Pascoe's employment agreement:

- "cause" means (a) executive is convicted of, or pleads nolo contendere to, a crime constituting a misdemeanor involving dishonesty or moral turpitude or any crime constituting a felony, (b) executive neglects, refuses or fails to perform executive's material duties, (c) executive commits a material act of dishonesty or otherwise engages in or is guilty of gross negligence or willful misconduct in the performance of executive's duties or (d) executive materially breaches the provisions of any written non-competition, non-disclosure or non-solicitation agreement, or any other agreement with us provided, however, that executive shall have 15 days following a notice of termination specifying a condition under clause (b), (c) or (d) constituting cause to cure such condition; and

- "good reason" means (a) material diminution by us of the executive's authority, duties or responsibilities the duration of which is greater than 15 days and which is not the result of his acts or omissions which constitute cause, (b) a material change in the geographic location at which the executive must perform services under the agreement, (c) a material diminution in his base salary which is not the result of an across-the-board reduction in base salaries of other senior executives of the Company or (d) any action or inaction that constitutes a material breach by us of the agreement, including our failure to pay any amounts due to the executive or our failure to obtain from a successor the express assumption of the agreement.

In April 2016, we entered into an amended and restated employment agreement with Dr. Guenther, under which Dr. Guenther serves as our executive vice president, research and development. Under this agreement, upon the execution of a release of claims, Dr. Guenther is eligible to receive severance benefits in specified circumstances.

In the event that we terminate Dr. Guenther without cause or he resigns for good reason, Dr. Guenther will be entitled to receive (a) an amount equal to 12 months of his annual base salary, less applicable deductions, payable in accordance with our normal payroll schedule, (b) a pro rata bonus award payable on the first regularly scheduled pay day following the 60th day after his termination, (c) 12 months of continued health coverage and (d) full vesting of his outstanding equity awards, except that if such termination occurs within 60 days before, upon or within one year following a sale that constitutes a "change in control event" as defined in Section 409A of the Code then in lieu of the payment described in clause (a) Dr. Guenther will be entitled to a lump sum payment equal to his annual base salary on the first regularly scheduled pay day following the 60th day after his termination. In the event that we terminate Dr. Guenther with cause, Dr. Guenther resigns without good reason, or the employment is terminated due to mutual agreement, death or disability, then Dr. Guenther will not be entitled to receive severance benefits. Under the terms of Dr. Guenther's employment agreement, if we enter into any change of control, all then unvested shares subject to outstanding options shall become fully vested and immediately exercisable immediately prior to such change in control.

The following definitions have been adopted in Dr. Guenther's employment agreement:

- "cause" means (a) executive performed an act or acts of willful and material malfeasance or misconduct with respect to the performance of his duties and responsibilities as an employee and executive officer or under the agreement that results in material harm to us that remains uncorrected for 15 days after receipt of written notice, (b) executive's continued failure to devote his full business time and attention and his best efforts to the faithful performance of his material duties and responsibilities (other than a failure resulting from disability) that remains uncorrected for 15 days after receipt of written notice, (c) executive's material breach of any material provision of the agreement that remains uncorrected for 15 days after receipt of written notice, (d) executive commits an act of fraud, embezzlement, misappropriation, or personal dishonesty against us (which, if proven, would constitute a felony) or (e) the conviction of, or plea of *nolo contendere* by, executive to a crime constituting a felony; and

- "good reason" means (a) material diminution by us of executive's authority, duties or responsibilities, the duration of which is greater than 15 days and which is not the result of his acts or omissions which constitute cause (b) a material change in the geographic location at which executive must principally perform services under the agreement, (c) a material diminution in his base salary which is not the result of his acts or omissions which constitute cause or (d) any action or inaction that constitutes a material breach by us of the agreement, including our failure to pay any amounts due to executive or our failure to obtain from a successor the express assumption of the agreement.

In June 2015, we entered into an amended and restated employment agreement with Mr. Clifton under which he serves as our chief financial officer. Under this agreement, Mr. Clifton is eligible to receive severance benefits in specified circumstances.

In the event that we terminate Mr. Clifton without cause or he resigns for good reason, Mr. Clifton will be entitled to receive (a) an amount equal to 12 months of his annual base salary, less applicable deductions, payable in accordance with our normal payroll schedule, (b) a pro rata bonus award payable on the first regularly scheduled pay day immediately after his termination, (c) 12 months of continued health coverage and (d) full vesting of his outstanding equity awards, except that if such termination occurs upon or within one year following a sale that constitutes a "change in control event" as defined in Section 409A of the Code then in lieu of the payment described in clause (a) Mr. Clifton will be entitled to a lump sum payment equal to his annual base salary on the first regularly scheduled pay day immediately following the effective date of his termination. In the event that we terminate Mr. Clifton with cause, Mr. Clifton resigns without good reason, or the employment is terminated due to mutual agreement, death or disability, then Mr. Clifton will not be entitled to receive severance benefits. Under the terms of Mr. Clifton's amended and restated employment agreement, as amended, if we enter into any change of control, all then unvested shares subject to outstanding options shall become fully vested and immediately exercisable immediately prior to such change in control.

The following definitions have been adopted in Mr. Clifton's employment agreement:

- "cause" means (a) executive performed an act or acts of willful and material malfeasance or misconduct with respect to the performance of his duties and responsibilities as an employee and executive officer or under the agreement that results in material harm to us that remains uncorrected for 15 days after receipt of written notice, (b) executive's continued failure to devote his full business time and attention and his best efforts to the faithful performance of his material duties and responsibilities (other than a failure resulting from disability) that remains uncorrected for 15 days after receipt of written notice, (c) executive's material breach of any material provision of the agreement that remains uncorrected for 15 days after receipt of written notice, (d) executive commits an act of fraud, embezzlement, misappropriation, or personal dishonesty against us (which, if proven, would constitute a felony) or (e) the conviction of, or plea of *nolo contendere* by, executive to a crime constituting a felony; and

- "good reason" means (a) material diminution by us of executive's authority, duties or responsibilities the duration of which is greater than 15 days and which is not the result of his acts or omissions which constitute cause, (b) a material change in the geographic location at which executive must perform services under the agreement, (c) a material diminution in executive's base salary which is not the result of his acts or omissions which constitute cause or (d) any action or inaction that constitutes a material breach by us of the agreement, including our failure to pay any amounts due to executive or our failure to obtain from a successor the express assumption of the agreement.

Outstanding Equity Awards at End of 2021

The following table provides information about outstanding stock options held by each of our named executive officers at December 31, 2021. All of these options were granted under our stock incentive plan, or the 2007 Plan, or our 2014 Plan.

	Option Awards			
Name	**Number of Securities Underlying Unexercised Options (#) Exercisable**	**Number of Securities Underlying Unexercised Options (#) Unexercisable**	**Option Exercise Price ($)**	**Option Expiration Date**
Travis C. Mickle, Ph.D.	3,333	—	$93.60	08/17/2022
	1,666	—	$93.60	07/30/2024
	13,750	—	$327.20	09/04/2025
	9,375	—	$201.92	02/10/2026
	14,062	—	$56.80	01/26/2027
	10,546	3,516(1)(2)	$88.00	01/24/2028
	13,125	13,125(1)(3)	$42.56	02/05/2029
	2,250	—	$8.2576	11/24/2029
	26,250(8)	—	$5.984	02/04/2030
	—	263,743(1)(4)	$9.06	08/19/2031
Richard W. Pascoe (7)	625	—	$304.32	08/25/2025
	625	—	$96.80	05/23/2026
	625	—	$63.20	05/22/2027
	937	—	$97.60	05/21/2028
	1,875	—	$25.92	04/23/2029
	1,875	—	$4.34	06/18/2030
	—	15,000(1)(5)	$15.47	06/16/2031
	—	100,000(1)(6)	$9.10	11/09/2031
Sven Guenther, Ph.D.	1,250	—	$93.60	07/09/2024
	3,125	—	$327.20	09/03/2025
	3,125	—	$201.92	02/10/2026
	4,687	—	$56.80	01/26/2027
	3,515	1,172(1)(2)	$88.00	01/24/2028
	5,000	5,000(1)(3)	$42.56	02/05/2029
	3,500	—	$8.2576	11/24/2029
	10,000(8)	—	$5.984	02/04/2030
	—	81,716(1)(4)	$9.06	08/19/2031
R. LaDuane Clifton, CPA	1,333	—	$176.00	04/01/2025
	2,812	—	$292.64	06/25/2025
	937	—	$327.20	09/03/2025
	3,125	—	$201.92	02/10/2026
	4,687	—	$56.80	01/26/2027
	3,515	1,172(1)(2)	$88.00	01/24/2028
	5,000	5,000(1)(3)	$42.56	02/05/2029
	2,250	—	$8.26	11/24/2029
	10,000(8)	—	$5.98	02/04/2030
	—	82,423(1)(4)	$9.06	08/19/2031

(1) All shares underlying these option grants will vest in full and become immediately exercisable (i) in the event that the option holder is terminated by us without cause or resigns for good reason or (ii) immediately prior to any change in control of KemPharm.

(2) The shares underlying this option will vest in equal annual installments over a period of four years beginning on January 25, 2019, through January 25, 2022.

(3) The shares underlying this option will vest in equal annual installments over a period of four years beginning on February 6, 2020, through February 6, 2023.

(4) The shares underlying this option will vest in equal annual installments over a period of four years beginning on August 20, 2022, through August 20, 2025.

(5) The shares underlying these options will vest on the earlier of (i) June 17, 2022, or (ii) one day prior to the date of the Annual Meeting.

(6) 50% of the shares underlying this option will vest upon the closing of the earlier of (x) a "Change in Control" (as defined in the 2014 Plan) of the Company or (y) a transformative business development transaction, as determined in the discretion of the board of directors (together, the "Transactions"); provided that the definitive agreement for either of the Transactions is executed on or prior to November 10, 2022 and Mr. Pascoe is, immediately prior to the closing of the Transactions still serving as Executive Chairman or as another executive officer; and the remaining 50% of the shares underlying this option will vest in equal annual installments over a period of four years beginning on November 10, 2022, through November 10, 2025.

(7) The options shown in the table represent stock options granted to Mr. Pascoe both in his capacity as a director and as our executive chairman.

(8) The shares subject to this option became vested in full and immediately exercisable upon the approval of the AZSTARYS NDA by the FDA in March 2021.

Pension Benefits

Our named executive officers did not participate in, or otherwise receive any benefits under, any qualified or non-qualified defined benefit pension plan sponsored by us during 2021 or 2020.

Nonqualified Deferred Compensation

Our named executive officers did not participate in, or otherwise receive any benefits under, any nonqualified deferred compensation plan sponsored by us during 2021 or 2020.

Equity Incentive Plans

2014 Equity Incentive Plan

Our Board adopted and our stockholders have approved our 2014 Plan. The 2014 Plan became effective on April 15, 2015. In June 2021, the Company's stockholders approved an Amended and Restated 2014 Equity Incentive Plan, or the A&R 2014 Plan, following its adoption by the Board in April 2021, which among other things added 4,900,000 shares to the maximum number of shares of common stock to be issued under the plan and extended the annual automatic increases (discussed further below) until January 1, 2031 and eliminated individual grant limits that applied under the 2014 Plan to awards that were intended to comply with the exemption for "performance-based compensation" under Code Section 162(m). As of December 31, 2021, options exercisable for 1,262,573 shares of our common stock have been granted and 17,152 shares of our common stock have been issued under our A&R 2014 Plan. Our A&R 2014 Plan provides for the grant of incentive stock options within the meaning of Section 422 of the Code to our employees and our parent and subsidiary corporations' employees, and for the grant of non-statutory stock options, restricted stock awards, restricted stock unit awards, stock appreciation rights, performance stock awards and other forms of stock compensation to our employees, including officers, consultants and directors. Our A&R 2014 Plan also provides for the grant of performance cash awards to our employees, consultants and directors.

Authorized Shares

The maximum number of shares of our common stock that may be issued under our A&R 2014 Plan as of December 31, 2021 was 5,489,660 shares. The number of shares of our common stock reserved for issuance under our 2014 Plan will automatically increase on January 1 of each year, continuing through January 1, 2031, by 4.0% of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares as may be determined by our Board. On January 1, 2022, the maximum number of shares of our common stock reserved for issuance under our A&R 2014 Plan was increased by 1,400,225 shares as a result of this automatic increase. The maximum number of shares that may be issued pursuant to the exercise of incentive stock options under the A&R 2014 Plan is 13,600,000. The aggregate maximum number of shares subject to awards granted during a single fiscal year to any non-employee director, taken together with any cash fees paid to such non-employee director during the fiscal year, cannot exceed $500,000 in total value, calculating the value of any such awards based on the grant date fair value of such awards for financial reporting purposes and excluding the value of any dividend equivalent payments paid pursuant to any award granted in a previous fiscal year.

Shares issued under our A&R 2014 Plan may be authorized but unissued or reacquired shares of our common stock. Shares subject to stock awards granted under our A&R 2014 Plan that expire or terminate without being exercised in full, or that are paid out in cash rather than in shares, will not reduce the number of shares available for issuance under our A&R 2014 Plan. Additionally, shares issued pursuant to stock awards under our A&R 2014 Plan that we repurchase or that are forfeited, as well as shares reacquired by us as consideration for the exercise or purchase price of a stock award or to satisfy tax withholding obligations related to a stock award, will become available for future grant under our A&R 2014 Plan.

Administration

Our Board, or a duly authorized committee thereof, has the authority to administer our A&R 2014 Plan. Our Board has delegated its authority to administer our A&R 2014 Plan to our Compensation Committee under the terms of the Compensation Committee's charter. Our Board, or a duly authorized committee thereof, may also delegate to one or more of our officers the authority to (a) designate employees other than officers to receive specified stock awards and (b) determine the number of shares of our common stock to be subject to such stock awards. Our Compensation Committee has delegated this authority to our chief executive officer, Travis C. Mickle, but not for himself and not for our executive officers. Subject to the terms of our A&R 2014 Plan, the administrator has the authority to determine the terms of awards, including recipients, the exercise price or strike price of stock awards, if any, the number of shares subject to each stock award, the fair market value of a share of our common stock, the vesting schedule applicable to the awards, together with any vesting acceleration, the form of consideration, if any, payable upon exercise or settlement of the stock award and the terms and conditions of the award agreements for use under our A&R 2014 Plan.

The administrator has the power to modify outstanding awards under our A&R 2014 Plan. Subject to the terms of our A&R 2014 Plan, the administrator has the authority to reprice any outstanding option or stock appreciation right, cancel and re-grant any outstanding option or stock appreciation right in exchange for new stock awards, cash or other consideration, or take any other action that is treated as a repricing under generally accepted accounting principles, with the consent of any adversely affected participant.

Performance Awards

Our A&R 2014 Plan permits the grant of performance-based stock and cash awards. Our Compensation Committee can structure such awards so that the stock or cash will be issued or paid pursuant to such award only following the achievement of specified pre-established performance goals during a designated performance period.

Corporate Transactions

Our A&R 2014 Plan provides that in the event of a specified corporate transaction, including a consolidation, merger, or similar transaction involving our company, the sale, lease or other disposition of all or substantially all of the assets of our company or the consolidated assets of our company and our subsidiaries, or a sale or disposition of at least 50% of the outstanding capital stock of our company, the administrator will determine how to treat each outstanding stock award. The administrator may:

- arrange for the assumption, continuation or substitution of an stock award by a successor corporation;
- arrange for the assignment of any reacquisition or repurchase rights held by us to a successor corporation;
- accelerate the vesting of the stock award and provide for its termination prior to the effective time of the corporate transaction;
- arrange for the lapse, in whole or in part, of any reacquisition or repurchase right held by us; or
- cancel the stock award prior to the transaction in exchange for a cash payment, which may be reduced by the exercise price payable in connection with the stock award.

The administrator is not obligated to treat all stock awards or portions of stock awards, even those that are of the same type, in the same manner. The administrator may take different actions with respect to the vested and unvested portions of a stock award.

Change in Control

The administrator may provide, in an individual award agreement or in any other written agreement between us and the participant, that the stock award will be subject to additional acceleration of vesting and exercisability in the event of a change in control. In the absence of such a provision, no such acceleration of the stock award will occur.

Plan Amendment or Termination

Our board has the authority to amend, suspend, or terminate our A&R 2014 Plan, provided that such action does not materially impair the existing rights of any participant without such participant's written consent. No incentive stock options may be granted after the tenth anniversary of the date our Board originally adopted our 2014 Plan.

2007 Plan

Our 2007 Plan was adopted by our Board and approved by our stockholders in June 2007. Awards outstanding under our 2007 Plan prior to completion of our initial public offering continue to be governed by their existing terms under the 2007 Plan. No further awards will be made under the 2007 Plan.

As of December 31, 2021, options to purchase 11,306 shares of our common stock were outstanding under the 2007 Plan.

Administration

Our Board or the Compensation Committee of our Board act as the administrator of the 2007 Plan. The administrator has the complete discretion to make all decisions relating to the plan and outstanding awards.

Eligibility

Employees, non-employee directors and consultants were eligible to participate in our 2007 Plan however only employees were eligible for the grant of incentive stock options.

Types of Awards

Our 2007 Plan provides for the award of incentive and non-statutory stock options and the award of incentive stock (including phantom stock credits to acquire incentive stock).

The administrator may (a) grant awards under the 2007 Plan conditional upon an election by a participant to defer payment of a portion of his or her salary, (b) give a participant a choice between two types of awards or combinations of awards, (c) grant awards in the alternative so that acceptance of or exercise of one award cancels the right of a participant to another and (d) grant awards in any combination or combinations and subject to any condition or condition consistent with the terms of the 2007 Plan that the administrator in its sole discretion may determine.

Terms of Awards

Subject to the terms of the 2007 Plan, the administrator determines the terms of all awards. The exercise price for stock options granted under the 2007 Plan may not be less than 100% of the fair market value of our common stock on the grant date; however, the exercise price for an incentive stock option granted to a holder of more than 10% of our stock may not be less than 110% of such fair market value on the grant date. Options are generally transferable only by will or the laws of descent and distribution, and may be exercised during the holder’s lifetime only by the holder or, in the case of a non-statutory stock option, by the holder’s guardian or legal representative.

The term of options granted under the 2007 Plan may not exceed ten years and will generally expire sooner if the optionee’s service terminates. Options vest at the times determined by the administrator.

Shares may be awarded under the 2007 Plan in consideration for services rendered to us or sold under the 2007 Plan. Shares awarded or sold under the 2007 Plan may be fully vested at grant or subject to special forfeiture conditions or rights of repurchase as determined by the administrator.

Change in Control

Until June 2014, our form of incentive stock option agreement provided for acceleration of vesting upon a change of control for incentive stock option awards issued under our 2007 Plan. All unvested shares subject to such an incentive stock option award will vest in full and become exercisable immediately prior to the effective date of a change of control transaction.

Our form of non-qualified stock option agreement provides for similar acceleration of vesting upon a change of control for non-qualified stock option awards issued under our 2007 Plan. All unvested shares subject to a non-qualified stock option award will vest in full and become immediately exercisable if the holder is terminated without cause within 24 months after the consummation of a change of control transaction.

Changes in Capitalization

If any change is made in the shares of the common stock by reason of any merger, consolidation, reorganization, recapitalization, stock dividend, split up, combination of shares, exchange of shares, change in corporate structure, or otherwise, appropriate adjustments will be made by the administrator to the kind and number of shares and price per share of stock subject to each outstanding award under our 2007 Plan. Any increase in the shares, or the right to acquire shares, as the result of such an adjustment will be subject to the same terms and conditions that apply to the award for which such increase was received. No fractional shares of common stock will be issued under the 2007 Plan on account of any such adjustment, and rights to shares always will be limited after such an adjustment to the lower full share.

Amendment and Termination

Our Board may at any time amend the 2007 Plan. However, our Board must obtain approval of our stockholders or any amendment requiring such approval under federal tax or federal securities laws. In addition, our Board may not alter or impair any award previously granted under the 2007 Plan without the consent of the holder of such award. The 2007 Plan will terminate ten years after the earliest of the date the 2007 Plan was adopted by our Board, the date our stockholder approved the 2007 Plan or a date determined by our Board.

401(k) Plan

We maintain a tax-qualified retirement plan that provides eligible U.S. employees with an opportunity to save for retirement on a tax advantaged basis. Eligible employees are able to defer eligible compensation subject to applicable annual Code limits. Currently, we match 100% of each eligible employee's contributions up to 4% of total eligible compensation. Employees' pre-tax contributions are allocated to each participant's individual account and are then invested in selected investment alternatives according to the participants' directions. Employees are immediately and fully vested in their contributions, and our matching contribution is also immediately and fully vested when made. The 401(k) plan is intended to be qualified under Section 401(a) of the Code with the 401(k) plan's related trust intended to be tax exempt under Section 501(a) of the Code. As a tax-qualified retirement plan, contributions to the 401(k) plan and earnings on those contributions are not taxable to the employees until distributed from the 401(k) plan.

Limitations on Liability and Indemnification Matters

Our amended and restated certificate of incorporation contains provisions that limit the liability of our current and former directors for monetary damages to the fullest extent permitted by Delaware law. Delaware law provides that directors of a corporation will not be personally liable for monetary damages for any breach of fiduciary duties as directors, except liability for:

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

This limitation of liability does not apply to liabilities arising under federal securities laws and does not affect the availability of equitable remedies such as injunctive relief or rescission.

Our amended and restated certificate of incorporation and our amended and restated bylaws provide that we are required to indemnify our directors to the fullest extent permitted by Delaware law. Our amended and restated bylaws also provide that, upon satisfaction of certain conditions, we are required to advance expenses incurred by a director in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under the provisions of Delaware law. Our amended and restated bylaws also provide our Board with discretion to indemnify our officers and employees when determined appropriate by the board. We have entered into and expect to continue to enter into agreements to indemnify our directors and executive officers. With certain exceptions, these agreements provide for indemnification for related expenses including, among other things, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors. We also maintain customary directors' and officers' liability insurance.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against our directors for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and other stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage awards against directors and officers as required by these indemnification provisions. At present, there is no pending litigation or proceeding involving any of our directors, officers or employees for which indemnification is sought and, other than the securities litigation matter we previously disclosed under Item 3—Legal Proceedings in our annual report on Form 10-K, we are not aware of any threatened litigation that may result in claims for indemnification.

Rule 10b5-1 Sales Plans

Our directors and executive officers may adopt written plans, known as Rule 10b5-1 plans, in which they will contract with a broker to buy or sell shares of our common stock on a periodic basis. Under a Rule 10b5-1 plan, a broker executes trades pursuant to parameters established by the director or officer when entering into the plan, without further direction from them. The director or officer may amend a Rule 10b5-1 plan in some circumstances and may terminate a plan at any time. Our directors and executive officers also may buy or sell additional shares outside of a Rule 10b5-1 plan when they are not in possession of material nonpublic information subject to compliance with the terms of our insider trading policy.

DIRECTOR COMPENSATION

In February 2016, our Compensation Committee adopted a non-employee director compensation policy. The policy provides for stipends to be paid to each of our non-employee directors for service on the Board and for service on the Audit Committee, the Compensation Committee and the Nominating and Corporate Governance Committee. In June 2020, our Compensation Committee amended the policy to suspend payment for committee membership, committee chairs, and for the role of lead independent director. In March 2021, the Board further amended and restated the non-employee director compensation policy to increase the number of shares subject to each non-employee director's annual option grant, for each non-employee director who continues to serve as a non-employee member of our Board following the annual meeting of our stockholders, from 1,875 shares of our common stock to 15,000 shares of our common stock. These stock options will vest and become exercisable in full on the earliest of (i) the first anniversary of the grant date, (ii) the day before the first annual stockholders meeting occurring after the grant date or (iii) immediately prior to a change in control of the Company, subject in each case to the director's continued service on such vesting date. As of December 31, 2021, the stipends payable under this policy were as follows:

	Member Annual Service Stipend ($)	Chairman Additional Annual Service Stipend ($)
Board of Directors	35,000	15,000
Audit Committee	7,500	15,000
Compensation Committee	5,000	10,000
Nominating and Corporate Governance Committee	5,000	7,500
Lead Independent Director	15,000	—

These stipends are payable in four equal quarterly installments on the last day of each quarter. In addition to stipends the non-employee director compensation policy also provides for an annual option grant for each non-employee director for service on our Board.

Pursuant to our non-employee director compensation policy, as amended, on the date of each annual meeting of our stockholders, each director who continues to serve as a non-employee member of our Board following such stockholders meeting will be automatically granted a stock option.

2021 Director Compensation Table

The following table sets forth information regarding compensation earned for service on our Board during 2021 by our non-employee directors. Dr. Mickle, our president and chief executive officer, was also a director during 2021 but did not receive any additional compensation for his service as a director. Dr. Mickle's compensation as an executive officer is set forth above under "Executive Compensation—Summary Compensation Table." Mr. Pascoe, our executive chairman, was also a director during 2021; his compensation for his service as a director prior to his appointment as executive chairman on November 10, 2021, is set forth above under "Executive Compensation—Summary Compensation Table."

Name	Fees Earned or Paid in Cash ($)	Option Awards (1) ($)	Total ($)
Matthew R. Plooster	55,000 (2)	180,300	235,300
Joseph B. Saluri	55,707 (3)	180,300	236,007
David S. Tierney	50,799 (4)	180,300	231,099
Tamara A. Seymour	21,957 (5)	162,669	184,626

(1) This column reflects the full grant date fair value for options granted during the year as measured pursuant to ASC Topic 718 as stock-based compensation in our financial statements. Unlike the calculations contained in our financial statements, this calculation does not give effect to any estimate of forfeitures related to service-based vesting but assumes that the director will perform the requisite service for the award to vest in full. The assumptions we used in valuing options are described in Note L to our audited financial statements included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

(2) Represents stipends awarded for Mr. Plooster's service on our Board, as the chairman of our Compensation Committee and as a member of our Nominating and Corporate Governance Committee during 2021.

(3) Represents stipends awarded for Mr. Saluri's service on our Board, as a member of our Audit Committee and as the chairman of our Nominating and Corporate Governance Committee during 2021, and as a member of the Compensation Committee from November 10, 2021, to December 31, 2021.

(4) Represents stipends awarded for Mr. Tierney's service on our Board, as a member of our Compensation Committee and as a member of our Nominating and Corporate Governance Committee during 2021, and as a member of the Audit Committee from January 1, 2021, to August 17, 2021 and again from November 10, 2021, to December 31, 2021.

(5) Represents stipends awarded for Ms. Seymour's service on our Board, as the chairman of our Audit Committee and as a member of our Compensation Committee from August 18, 2021, through December 31, 2021.

The table below shows the aggregate number of option awards outstanding for each of our non-employee directors as of December 31, 2021:

Name	Aggregate Option Awards Outstanding (#)
Matthew R. Plooster	22,312 (2)
Joseph B. Saluri	21,562 (1)
David S. Tierney	21,562 (1)
Tamara A. Seymour	22,500 (3)

(1) As of December 31, 2021, 6,562 shares underlying these options were vested. The remaining 15,000 shares underlying these options will vest on the earlier of (i) June 17, 2022 or (ii) one day prior to the date of the Annual Meeting.

(2) As of December 31, 2021, 7,312 shares underlying these options were vested. The remaining 15,000 shares underlying these options will vest on the earlier of (i) June 17, 2022 or (ii) one day prior to the date of the Annual Meeting.

(3) As of December 31, 2021, 22,500 shares underlying these options will vest in equal annual installments over a period of three years beginning on August 18, 2022, through August 18, 2024.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth the beneficial ownership of our common stock as of March 29, 2022. for:

- each person, or group of affiliated persons, who is known by us to beneficially own more than 5% of our common stock;
- each of our named executive officers;
- each of our directors; and
- all of our current executive officers and directors as a group.

The percentage ownership information shown in the table is based upon 34,422,503 shares of common stock outstanding as of March 29, 2022.

We have determined beneficial ownership in accordance with the rules of the SEC. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities. In addition, the rules include shares of common stock issuable pursuant to (i) the conversion of outstanding convertible notes, assuming a conversion date of May 28, 2022, and (ii) the exercise of stock options or warrants that are either immediately exercisable or exercisable on or before May 28, 2022, which is 60 days after March 29, 2022. These shares are deemed to be outstanding and beneficially owned by the person holding those convertible notes, options or warrants for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, the persons or entities identified in this table have sole voting and investment power with respect to all shares shown as beneficially owned by them, subject to applicable community property laws.

Except as otherwise noted below, the address for persons listed in the table is c/o KemPharm, Inc., 1180 Celebration Blvd., Suite 103, Celebration, FL 34747.

Name of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned
Principal Stockholders:		
Samuel J. Braun (1)	3,021,660	8.8%
BlackRock, Inc (2)	2,235,542	6.5%
Named Executive Officers and Directors:		
Travis C. Mickle, Ph.D. (3)	263,209	*
Sven Guenther, Ph.D. (4)	40,614	*
R. LaDuane Clifton, CPA (5)	42,571	*
Richard W. Pascoe (6)	9,847	*
Matthew R. Plooster (7)	11,413	*
Joseph B. Saluri (8)	7,868	*
David S. Tierney (9)	10,855	*
All current directors and executive officers as a group (7 persons) (10)	386,377	1.1%

* Represents beneficial ownership of less than 1%.

(1) As reported on a Schedule 13G/A filed by Samuel J. Braun with the SEC on January 12, 2022. Mr. Braun has sole voting and dispositive power over 2,657,160 shares and shared voting and dispositive power over 364,500 shares. ThinkSwitch Capital, LLC has shared voting and dispositive power over 323,500 shares. ThetaBurn Investments LLC has shared voting and dispositive power over 41,000 shares. The principal business address of Samuel J. Braun is 5 West Main St., Box 361, Warner, SD 57479-0361.

(2) As reported on a Schedule 13G filed by BlackRock, Inc. with the SEC on February 4, 2022. The principal business address of BlackRock, Inc. is 55 East 52nd Street, New York, NY 10055.

(3) Consists of (a) 36,521 shares of common stock held directly by Dr. Mickle, (b) 9,824 shares of common stock held by the Travis C. Mickle 2015 Dynasty Trust dated 7/21/2015, for which Ms. Christal M.M. Mickle ("Ms. Mickle") serves as trustee, (c) 15,242 shares of common stock held by the Christal M.M. Mickle 2015 Gift Trust dated 7/21/2015, for which Dr. Mickle serves as trustee, (d) 96,153 shares of common stock held by Mickle Holdings, LLC, for which Dr. Mickle is the sole manager member (e) 1,034 shares of common stock held by Mickle Investments LLC, for which Dr. Mickle is the sole manager member, and (g) 104,435 shares of common stock underlying options held by Dr. Mickle that are exercisable within 60 days of March 29, 2022.

(4) Consists of (a) 2,740 shares of common stock held directly by Dr. Guenther, and (b) 37,874 shares of common stock underlying options that are exercisable within 60 days of March 29, 2022.

(5) Consists of (a) 5,240 shares of common stock held directly by Mr. Clifton, and (b) 37,331 shares of common stock underlying options that are exercisable within 60 days of March 29, 2022.

(6) Consists of (a) 3,285 shares of common stock held directly by Mr. Pascoe, and (b) 6,562 shares of common stock underlying options that are exercisable within 60 days of March 29, 2022.

(7) Consists of (a) 1,532 shares of common stock held directly by Mr. Plooster, (b) 69 shares of common stock held by TD Ameritrade Clearing Inc. Custodian FBO Matthew Ryan Plooster Roth IRA, for which Mr. Plooster serves as trustee, (c) 2,500 shares of common stock held by jointly by Mr. Plooster and his spouse, and (d) 7,312 shares of common stock underlying options held by Mr. Plooster that are exercisable within 60 days of March 29, 2022.

(8) Consists of (a) 1,306 shares of common stock held directly by Mr. Saluri and (b) 6,562 shares of common stock underlying options that are exercisable within 60 days of March 29, 2022.

(9) Consists of (a) 3,835 shares of common stock held directly by Mr. Tierney and (b) 7,020 shares of common stock underlying options that are exercisable within 60 days of March 29, 2022.

(10) Consists of (a) 179,281 shares of common stock, and (b) 207,096 shares of common stock underlying options that are exercisable within 60 days of March 29, 2022.

SECURITIES AUTHORIZED FOR ISSUANCE UNDER THE EQUITY COMPENSATION PLANS

The following table provides information with respect to all of our equity compensation plans in effect as of December 31, 2021. Information is included for the 2007 Plan and the A&R 2014 Plan, each of which was in effect as of December 31, 2021, and was adopted with the approval of our stockholders.

EQUITY COMPENSATION PLAN INFORMATION

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants, and rights (#)(a)	Weighted-average exercise price of outstanding options, warrants, and rights ($)(b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (#)(c)
Equity compensation plans approved by security holders	1,273,879 (1)	$27.58	5,709,935 (2)
Equity compensation plans not approved by security holders	—	—	—
Total	1,273,879		5,709,935

(1) Includes (i) options to purchase a total of 11,306 shares of our common stock under the 2007 Plan and (ii) options to purchase a total of 1,262,573 shares of common stock under the 2014 Plan.

(2) Consists of 4,209,935 shares of common stock reserved for issuance under the A&R 2014 Plan and 1,500,000 shares of common stock reserved for issuance under the 2021 ESPP. The number of shares of our common stock reserved for issuance under the A&R 2014 Plan will automatically increase each year on January 1 from January 1, 2016 continuing through January 1, 2031, by (i) 4.0% of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year, or (ii) a lesser number of shares determined by our Board. Pursuant to the terms of the 2014 Plan, an additional 1,400,225 shares of common stock were added to the number of shares reserved for issuance under the 2014 Plan, effective January 1, 2022.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Certain Transactions

The following are certain transactions, arrangements and relationships with persons who are, or were during the period beginning January 1, 2020, our directors, executive officers or shareholders owning 5% or more of our outstanding common shares.

December 2020 Exchange Agreement

In December 2020, we entered into a December 2020 Exchange Agreement and Amendment to Facility Agreement, Notes and Investors' Rights Agreement (the "December 2020 Exchange Agreement"), which was amended on December 24, 2020. Pursuant to the December 2020 Exchange Agreement, (a) we made a cash pre-payment (the "Debt Payment") of a portion of the principal amount of our then outstanding senior secured convertible notes issued in December 2019 and January 2020 (the "Senior Secured Notes") and the senior secured convertible promissory note (the "Deerfield Note") then held by Deerfield Private Design Fund III, L.P., which was a 5% stockholder ("Deerfield" and together with Deerfield Special Situations Fund, L.P., the "Deerfield Lenders"), to the Deerfield Lenders, Delaware Street Capital Master Fund, L.P. and M. Kingdon Offshore Master Fund, LP, or, collectively, the Holders, in an aggregate amount equal to approximately $30.3 million; and (b) issued 31,476.98412 shares of our Series B-2 Preferred Stock and warrants exercisable for 3,632,019 shares of our common stock in exchange for the cancellation of a portion of the principal amount of the Senior Secured Notes and Deerfield Note owned by the Holders, with such transaction referred to as the Exchange. Immediately following the completion of the Exchange and Debt Payment, the aggregate balance of principal and accrued interest remaining outstanding under the Senior Secured Notes and the Deerfield Note was approximately $7.6 million.

For further information regarding this agreement, see "Item 7—Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Debt Restructuring."

Investors' Rights Agreement

We have entered into an investors' rights agreement with some of our stockholders, including Deerfield Private Design Fund III, L.P., which was a 5% stockholder. The investors' rights agreement, among other things, grants these stockholders specified registration rights with respect to shares of our common stock, including shares of common stock issued or issuable upon conversion or reclassification of the shares of our redeemable convertible preferred stock, convertible notes and warrants held by them. The provisions of this agreement, other than those relating to registration rights, terminated on the two-year anniversary of our initial public offering as to all stockholders party to such agreement, other than Deerfield Private Design Fund III, L.P.

Indemnification Agreements

Our amended and restated certificate of incorporation contains provisions limiting the liability of directors, and our amended and restated bylaws provide that we will indemnify each of our directors to the fullest extent permitted under Delaware law. Our amended and restated certificate of incorporation and amended and restated bylaws also provide our Board with discretion to indemnify our officers and employees when determined appropriate by the board.

In addition, we have entered into indemnification agreements with our directors and executive officers. For more information regarding these agreements, see "Executive Compensation—Limitations on Liability and Indemnification Matters."

DIRECTOR INDEPENDENCE

Independence of the Board of Directors

As required under Nasdaq listing standards, a majority of the members of our Board must qualify as "independent," as affirmatively determined by the Board. Our Board consults with our counsel to ensure that the Board's determinations are consistent with relevant securities and other laws and regulations regarding the definition of "independent," including those set forth in pertinent listing standards of Nasdaq, as in effect from time to time.

Consistent with these considerations, after review of all relevant identified transactions or relationships between each director, or any of his or her family members, and the Company, its senior management and its independent registered public accounting firm, the Board has affirmatively determined that the following four directors are independent directors within the meaning of the applicable Nasdaq listing standards: Matthew R. Plooster, Joseph B. Saluri, David S. Tierney and Tamara A. Seymour.

In making this determination, the Board found that none of these directors had a material or other disqualifying relationship with us. The Board considered the current and prior relationships that each non-employee director has with us and all other facts and circumstances our Board deemed relevant in determining their independence, including the beneficial ownership of our capital stock by each non-employee director. Dr. Mickle, our president and chief executive officer, and Mr. Pascoe, our executive chairman are not independent directors by virtue of their employment with the Company.

Independence of Members of Committees of the Board of Directors

Each of the members of each of the Audit Committee, the Compensation Committee and the Nominating and Corporate Governance Committee are independent, as determined in accordance with the applicable independence requirements for each such committee.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

Principal Accountant Fees and Services

The following table represents aggregate fees billed to the Company for the fiscal years ended December 31, 2021, and December 31, 2020, by RSM US LLP, or RSM, the Company's principal accountant for those fiscal years (in thousands).

	Year Ended December 31, (1)	
	2021	2020
Audit Fees (2)	$ 333	$ 316
Audit-related Fees (3)	—	—
Tax Fees (4)	—	—
All Other Fees (5)	—	—
Total Fees	**$ 333**	**$ 316**

(1) All fees described above were pre-approved by the Audit Committee.

(2) Audit Fees are fees for the annual audit and quarterly reviews of the Company's financial statements, audits required by public company regulation, professional consultations with respect to accounting issues, registration statement filings and issuance of consents and similar matters.

(3) Audit-related Fees are fees for assurance and related services that are reasonably related to the performance of the audit or review of our financial statements and are not reported under "Audit Fees." No Audit-related Fees were billed in fiscal year 2021 or 2020.

(4) Tax Fees are fees for tax compliance, planning and preparation. No Tax Fees were billed in fiscal year 2021 or 2020.

(5) All Other Fees are fees for products and services other than the services described above. No Other Fees were billed in fiscal year 2021 or 2020.

Pre-Approval Policies and Procedures

The Audit Committee has adopted a policy and procedures for the pre-approval of audit and non-audit services rendered by our independent registered public accounting firm. The policy generally pre-approves specified services in the defined categories of audit services, audit-related services, tax services and other permissible non-audit services, so long as such non-audit services will not impair the independent registered public accounting firm's independence and are consistent with applicable rules and regulations, up to specified amounts. Pre-approval may also be given as part of the Audit Committee's approval of the scope of the engagement of the independent registered public accounting firm or on an individual, explicit, case-by-case basis before the independent registered public accounting firm is engaged to provide each service. The pre-approval of services may be delegated to one or more of the Audit Committee's members, but the decision must be reported to the full Audit Committee at its next scheduled meeting.

The Audit Committee has determined that the rendering of services other than audit services by RSM was compatible with maintaining the independent registered public accounting firm's independence.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this report:

(1) *Index list to Financial Statements:*

(2) *Financial Statement Schedules*

All other schedules are omitted because they are not required or the required information is included in the financial statements or notes thereto.

(3) *Exhibits*

The exhibits listed in the accompanying Exhibit Index are filed or incorporated by reference as part of this report.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Stockholders and the Board of Directors of KemPharm, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of KemPharm, Inc. (the Company) as of December 31, 2021 and 2020, the related statements of operations, changes in stockholders' equity (deficit) and cash flows for the years then ended, and the related notes to the financial statements. In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with 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 financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

Critical audit matters are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. We determined that there are no critical audit matters.

/s/ RSM US LLP

We have served as the Company's auditor since 2017.

Orlando, Florida
March 30, 2022

KEMPHARM, INC.
BALANCE SHEETS
(in thousands, except share and par value amounts)

	December 31,	
	2021	**2020**
Assets		
Current assets:		
Cash and cash equivalents	$ 112,346	$ 4,213
Accounts and other receivables	1,528	2,579
Prepaid expenses and other current assets	1,182	1,481
Restricted cash	-	109
Total current assets	115,056	8,382
Property and equipment, net	884	1,039
Operating lease right-of-use assets	1,141	1,350
Long-term investments	15,422	-
Other long-term assets	438	438
Total assets	$ 132,941	$ 11,209
Liabilities and stockholders' equity (deficit)		
Current liabilities:		
Accounts payable and accrued expenses	$ 3,038	$ 6,647
Current portion of operating lease liabilities	356	327
Current portion of loans payable	-	390
Other current liabilities	836	172
Total current liabilities	4,230	7,536
Convertible notes, less current portion, net	-	67,658
Derivative and warrant liability	330	304
Operating lease liabilities, less current portion	1,232	1,587
Loans payable, less current portion	-	391
Other long-term liabilities	31	145
Total liabilities	5,823	77,621
Commitments and contingencies (Note H)		
Stockholders' equity (deficit):		
Preferred stock:		
Series A convertible preferred stock, $0.0001 par value, no shares authorized, issued or outstanding as of December 31, 2021; 9,578 shares authorized, 9,577 shares issued and no shares outstanding as of December 31, 2020	-	-
Series B-1 convertible preferred stock, $0.0001 par value, no shares authorized, issued or outstanding as of December 31, 2021; 1,576 shares authorized and issued and no shares outstanding as of December 31, 2020	-	-
Series B-2 convertible preferred stock, $0.0001 par value, no shares authorized, issued or outstanding as of December 31, 2021; 27,000 shares authorized and issued and no shares outstanding as of December 31, 2020	-	-
Undesignated preferred stock, $0.0001 par value, 10,000,000 shares authorized, no shares issued or outstanding as of December 31, 2021; 9,961,846 shares authorized, no shares issued or outstanding as of December 31, 2020	-	-
Common stock, $0.0001 par value, 250,000,000 shares authorized, 35,325,801 shares issued and 35,005,640 shares outstanding as of December 31, 2021; 4,537,321 shares issued and outstanding as of December 31, 2020	4	0
Additional paid-in capital	396,957	192,062
Treasury stock, at cost	(2,814)	-
Accumulated deficit	(267,029)	(258,474)
Total stockholders' equity (deficit)	127,118	(66,412)
Total liabilities and stockholders' equity (deficit)	$ 132,941	$ 11,209

See accompanying notes to financial statements

KEMPHARM, INC.
STATEMENTS OF OPERATIONS
(in thousands, except share and per share amounts)

	Year Ended December 31,	
	2021	**2020**
Revenue	$ 28,650	$ 13,288
Operating expenses:		
Royalty and direct contract acquisition costs	2,059	1,305
Research and development	10,161	8,843
General and administrative	8,701	7,921
Severance expense	-	828
Total operating expenses	20,921	18,897
Income (loss) from operations	7,729	(5,609)
Other (expense) income:		
Loss on extinguishment of debt	(16,096)	-
Interest expense related to amortization of debt issuance costs and discount	(150)	(2,305)
Interest expense on principal	(226)	(4,785)
Fair value adjustment related to derivative and warrant liability	(26)	(184)
Interest and other income, net	248	89
Total other (expense) income	(16,250)	(7,185)
Loss before income taxes	(8,521)	(12,794)
Income tax (expense) benefit	(34)	34
Net loss	(8,555)	(12,760)
Deemed dividend	(54,342)	-
Net loss attributable to common stockholders	$ (62,897)	$ (12,760)
Basic net loss per share of common stock:		
Net loss attributable to common stockholders	$ (2.11)	$ (3.21)
Diluted net loss per share of common stock:		
Net loss attributable to common stockholders	$ (2.11)	$ (3.21)
Weighted average number of shares of common stock outstanding:		
Basic	29,766,347	3,980,975
Diluted	29,766,347	3,980,975

See accompanying notes to financial statements

KEMPHARM, INC.
STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY (DEFICIT)
(in thousands)

	Preferred Stock								
	Series A Convertible Preferred Stock	Series B-1 Convertible Preferred Stock	Series B-2 Convertible Preferred Stock	Undesignated Preferred Stock	Common Stock	Additional Paid-in Capital	Treasury Stock	Accumulated Deficit	Total Stockholders' Equity (Deficit)
Balance as of January 1, 2020	$ -	$ -	$ -	$ -	$ -	$ 171,258	$ -	$ (245,714)	$ (74,456)
Net loss	-	-	-	-	-	-	-	(12,760)	(12,760)
Stock-based compensation expense	-	-	-	-	-	2,491	-	-	2,491
Issuance of common stock in connection with equity line of credit	-	-	-	-	-	2,303	-	-	2,303
Issuance of common stock in connection with Deerfield Optional Conversion Feature	-	-	-	-	-	15,863	-	-	15,863
Recognition of deferred offering costs in connection with equity line of credit	-	-	-	-	-	121	-	-	121
Offering expenses charged to equity	-	-	-	-	-	(153)	-	-	(153)
Issuance of common stock in exchange for consulting services	-	-	-	-	-	202	-	-	202
Cash paid in lieu of fractional shares in connection with 16-for-1 reverse stock split	-	-	-	-	-	(23)	-	-	(23)
Balance as of December 31, 2020	$ -	$ -	$ -	$ -	$ -	$ 192,062	$ -	$ (258,474)	$ (66,412)

KEMPHARM, INC.
STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY (DEFICIT), CONTINUED
(in thousands)

	Preferred Stock								
	Series A Convertible Preferred Stock	Series B-1 Convertible Preferred Stock	Series B-2 Convertible Preferred Stock	Undesignated Preferred Stock	Common Stock	Additional Paid-in Capital	Treasury Stock	Accumulated Deficit	Total Stockholders' Equity (Deficit)
Balance as of December 31, 2020	$ -	$ -	$ -	$ -	$ -	$ 192,062	$ -	$ (258,474)	$ (66,412)
Net loss	-	-	-	-	-	-	-	(8,555)	(8,555)
Stock-based compensation expense	-	-	-	-	-	2,436	-	-	2,436
Issuance of common stock in connection with Public Offering, net of discounts and commissions	-	-	-	-	1	49,284	-	-	49,285
Issuance of common stock in connection with the exercise of warrants in the January 2021 Inducement Transaction, net of discounts and commissions	-	-	-	-	1	40,390	-	-	40,391
Issuance of common stock in connection with the exercise of common stock warrants	-	-	-	-	-	30,819	-	-	30,819
Fair value of warrants issued in connection with the Exchange Agreement	-	-	-	-	-	15,990	-	-	15,990
Fair value of Series B-2 Preferred Stock issued in accordance with the Exchange Agreement	-	-	29,056	-	-	-	-	-	29,056
Issuance of common stock as a result of Series B-2 Preferred Stock conversion	-	-	(29,056)	-	1	29,055	-	-	-
Fair value of warrants issued in connection with the January 2021 Inducement Transaction	-	-	-	-	-	38,437	-	-	38,437
Deemed dividend related to the January 2021 Inducement Transaction	-	-	-	-	-	(37,444)	-	-	(37,444)
Issuance of common stock in connection with the exercise of warrants in the June 2021 Inducement Transaction, net of discounts and commissions	-	-	-	-	1	36,559	-	-	36,560
Fair value of warrants issued in connection with the June 2021 Inducement Transaction	-	-	-	-	-	17,089	-	-	17,089
Deemed dividend related to the June	-	-	-	-	-	(16,898)	-	-	(16,898)

2021 Inducement Transaction									
Shares repurchased as part of the Share Repurchase Program	-	-	-	-	-	-	(2,814)	-	(2,814)
Offering expenses charged to equity	-	-	-	-	-	(1,124)	-	-	(1,124)
Issuance of common stock in exchange for consulting services	-	-	-	-	-	302	-	-	302
Balance as of December 31, 2021	$ -	$ -	$ -	$ -	$ 4	$ 396,957	$ (2,814)	$ (267,029)	$ 127,118

See accompanying notes to financial statements

KEMPHARM, INC.
STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,	
	2021	**2020**
Cash flows from operating activities:		
Net loss	$ (8,555)	$ (12,760)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:		
Loss on extinguishment of debt	16,096	-
Stock-based compensation expense	2,436	2,491
Non-cash interest expense	8	4,741
Amortization of debt issuance costs and debt discount	150	2,305
Depreciation and amortization expense	257	273
Fair value adjustment related to derivative and warrant liability	26	184
Loss on sublease and disposal of property and equipment	76	251
Consulting fees paid in common stock	302	202
Change in assets and liabilities:		
Accounts and other receivables	1,051	(714)
Prepaid expenses and other assets	(825)	160
Operating lease right-of-use assets	133	128
Accounts payable and accrued expenses	(1,113)	931
Operating lease liabilities	(326)	(271)
Other liabilities	723	140
Net cash provided by (used in) operating activities	10,439	(1,939)
Cash flows from investing activities:		
Purchases of property and equipment	(102)	(33)
Purchases of long-term investments	(15,422)	-
Net cash used in investing activities	(15,524)	(33)
Cash flows from financing activities:		
Proceeds from Public Offering, net of discounts and commissions	49,285	-
Proceeds from January 2021 Inducement Transaction, net of discounts and commissions	41,384	-
Proceeds from June 2021 Inducement Transaction, net of discounts and commissions	36,751	-
Payment to repurchase shares as part of the Share Repurchase Program	(2,814)	-
Proceeds from equity line of credit	-	2,303
Proceeds from Payment Protection Program loan	-	781
Payment of offering costs	(1,338)	(84)
Repayment of principal on finance lease liabilities	(173)	(227)
Payment of debt issuance costs	(2,881)	(34)
Repayment of principal on convertible notes	(37,924)	-
Net proceeds from exercise of common stock warrants	30,819	-
Net cash provided by financing activities	113,109	2,739
Net increase in cash, cash equivalents and restricted cash	108,024	767
Cash, cash equivalents and restricted cash, beginning of year	4,322	3,555
Cash, cash equivalents, end of year	$ 112,346	$ 4,322
Supplemental cash flow information:		
Cash paid for interest	$ 218	$ 78
Facility Notes principal converted to Series B-2 Preferred Stock	31,477	-
2019 Notes principal converted to common stock	-	15,863
Commitment shares issued in connection with equity line of credit included in deferred offering costs	-	121
Amounts due for property and equipment included in accounts payable and accrued expenses	-	4
Amounts due for deferred offering costs included in accounts payable and accrued expenses	48	817
Cash paid in lieu of fractional shares in connection with 16-for-1 reverse stock split included in accounts payable and accrued expenses	-	23
Property and equipment financed under a lease agreement	-	17
Fair value of warrants issued to underwriters in connection with Public Offering	3,485	-

See accompanying notes to financial statements

KEMPHARM, INC.
NOTES TO FINANCIAL STATEMENTS

A. Description of Business and Basis of Presentation

Organization

KemPharm, Inc. (the "Company") is a specialty pharmaceutical company focused on the discovery and development of treatments for central nervous system ("CNS") and rare disease indications that allow the Company to target high-value areas with significant unmet needs. The Company's core competency is the discovery and development of proprietary prodrugs to treat serious medical conditions through its proprietary Ligand Activated Therapy ("LAT®") platform technology. The Company utilizes its proprietary LAT platform technology to generate improved prodrug versions of drugs approved by the U.S. Food and Drug Administration ("FDA") as well as to generate prodrug versions of existing compounds that may have applications for new disease indications. The Company's prodrug product candidate pipeline is currently focused on the high need areas of idiopathic hypersomnia ("IH") and other CNS/rare diseases. The Company's approved product, AZSTARYS®, formerly referred to as KP415, a new once-daily treatment for attention deficit hyperactivity disorder ("ADHD") in patients age six years and older contains the Company's prodrug, serdexmethylphenidate ("SDX"). AZSTARYS is being commercialized in the United States by Corium, Inc., an affiliate of Gurnet Point Capital, L.P. The Company's lead clinical development product candidate, KP1077, is based on SDX, the Company's prodrug of d-methlyphenidate ("d-MPH") and is in development for the treatment of IH and narcolepsy. The Company's prodrug product candidate for the treatment of stimulant use disorder ("SUD") is KP879.

Basis of Presentation

The Company prepared the financial statements in accordance with United States generally accepted accounting principles (“GAAP”) and the rules and regulations of the United States Securities and Exchange Commission (the "SEC") and, in the Company's opinion, reflect all adjustments, including normal recurring items that are necessary.

Reverse Stock Split

On December 23, 2020, the Company completed a one-for-sixteen reverse stock split (the “Reverse Stock Split”), which reduced the number of shares of the Company’s common stock that were issued and outstanding immediately prior to the effectiveness of the Reverse Stock Split. The number of shares of the Company’s authorized common stock was not affected by the Reverse Stock Split and the par value of the Company’s common stock remained unchanged at $0.0001 per share. No fractional shares were issued in connection with the Reverse Stock Split. Stockholders who otherwise held fractional shares of the Company’s common stock as a result of the Reverse Stock Split received a cash payment in lieu of such fractional shares. Except where disclosed, all amounts related to number of shares and per share amounts have been retroactively restated in these financial statements to reflect this Reverse Stock Split.

Entry into 2020 ELOC Agreement

In February 2020, the Company entered into a purchase agreement for an equity line of credit (the “2020 ELOC Agreement”) with Lincoln Park Capital, LLC ("Lincoln Park") which provides that, upon the terms and subject to the conditions and limitations set forth therein, the Company may sell to Lincoln Park up to $4.0 million of shares of common stock from time to time over the 12-month term of the 2020 ELOC Agreement, and upon execution of the 2020 ELOC Agreement the Company issued an additional 19,289 shares of common stock to Lincoln Park as commitment shares in accordance with the closing conditions within the 2020 ELOC Agreement. Concurrently with entering into the 2020 ELOC Agreement, the Company also entered into a registration rights agreement with Lincoln Park (the “2020 ELOC Registration Rights Agreement”) pursuant to which the Company agreed to register the sale of the shares of common stock that have been and may be issued to Lincoln Park under the 2020 ELOC Agreement pursuant to the Company’s existing shelf registration statement on Form S-3 or a new registration statement. In May 2020, the Company reached the maximum allowable shares to be issued under the registration statement of 579,260 shares (inclusive of the 19,289 commitment shares) as defined in Section 2(f)(i) of the 2020 ELOC Agreement and therefore cannot issue additional shares under the 2020 ELOC Agreement. Through May 2020, the Company sold 559,971 shares of common stock to Lincoln Park (exclusive of the 19,289 commitment shares) under the 2020 ELOC Agreement for gross proceeds of approximately $2.3 million.

Underwriting Agreement

On January 8, 2021, the Company entered into an underwriting agreement (the "Underwriting Agreement") with Roth Capital Partners, LLC (the "Underwriter" or "Roth"), to issue and sell 6,765,463 shares of common stock of the Company, pre-funded warrants to purchase 926,844 shares of common stock and warrants to purchase 7,692,307 shares of common stock at an exercise price per share of $6.50 in an underwritten public offering (the "Public Offering") pursuant to a registration statement on Form S-1 (File No. 333-250945) and a related prospectus, in each case filed with the Securities and Exchange Commission (the "SEC"). The offering price to the public was $6.50 per share of common stock and accompanying warrant, representing a public offering price of $6.4999 per share of common stock and $0.0001 per related warrant. In addition, the Company granted the Underwriter an option to purchase, for a period of 45 days, up to an additional 1,153,846 shares of the Company's common stock and/or warrants to purchase up to an additional 1,153,846 shares of the Company's common stock.

On January 8, 2021, the Underwriter exercised its over-allotment option, in part, for warrants to purchase 754,035 shares of the Company's common stock. Further on February 1, 2021, the Underwriter again exercised its over-allotment option to purchase 374,035 shares of common stock.

On January 12, 2021, the Company closed the Public Offering. The aggregate gross proceeds to the Company from the Public Offering, including over-allotment, totaled approximately $52.4 million, before deducting underwriting discounts and commissions and offering expenses payable by the Company.

On January 25, 2022, the Company filed an amendment to the registration statement on Form S-1 (File No. 333-250945) on Form S-3 covering the issuance of the shares of our common stock issuable upon the exercise of the warrants issued in the Public Offering and remaining unexercised as of the date of the amendment, which was declared effective on February 1, 2022.

Listing on the Nasdaq Stock Market

On January 7, 2021, the Company's common stock was approved for listing on the Nasdaq Capital Market. The Company's common stock began trading on the Nasdaq Capital Market on January 8, 2021, under the ticker symbol "KMPH".

On October 19, 2021, the Company announced that its shares of common stock were approved for listing to the Nasdaq Global Select Market. Trading on the Nasdaq Global Select Market commenced effective with the open of business on October 19, 2021, under the Company's ticker symbol, "KMPH". The Company was previously listed on the Nasdaq Capital Market, following its uplisting to the exchange in January 2021.

Entry into 2021 ATM Agreement

On July 2, 2021, the Company entered into an equity distribution agreement (the "2021 ATM Agreement") with JMP Securities LLC ("JMP") and RBC Capital Markets, LLC ("RBCCM") under which the Company may offer and sell, from time to time at its sole discretion, shares of its common stock having an aggregate offering price of up to $75.0 million through JMP and RBCCM as its sales agents. The issuance and sale, if any, of common stock by the Company under the 2021 ATM Agreement will be made pursuant to a registration statement on Form S-3. JMP and RBCCM may sell the common stock by any method permitted by law deemed to be an "at the market offering" as defined in Rule 415 of the Securities Act of 1933, as amended. JMP and RBCCM will use commercially reasonable efforts to sell the common stock from time to time, based upon instructions from the Company (including any price, time or size limits or other customary parameters or conditions the Company may impose). The Company will pay JMP and RBCCM a commission equal to 3.0% in the aggregate of the gross sales proceeds of any common stock sold through JMP and RBCCM under the 2021 ATM Agreement. The Company filed a registration statement on Form S-3 covering the sale of the shares of its common stock up to $350.0 million, $75.0 million of which was allocated to the sales of the shares of common stock issuable under the 2021 ATM Agreement, which was declared effective on July 12, 2021. As of December 31, 2021, no shares have been issued or sold under the 2021 ATM Agreement.

Share Repurchase Program

On December 20, 2021, the Company initiated a share repurchase program (the "Share Repurchase Program") pursuant to which the Company may repurchase up to $50 million of shares of its common stock through December 31, 2023. Capital allocation to the Share Repurchase Program will be based on a variety of factors, including our business results, the receipt of royalties and sales milestones under the KP415 License Agreement, and potentially other sources of non-dilutive capital that may become available to the Company. Repurchases will be made in compliance with Rule 10b-18 of the Securities Exchange Act of 1934, as amended, subject to a variety of factors, including the market price of the Company's common stock, general market and economic conditions and applicable legal requirements. The exact number of shares to be repurchased by the Company is not guaranteed and the program may be suspended, modified, or discontinued at any time without prior notice. As of December 31, 2021, the Company has repurchased 320,161 shares of its common stock for approximately $2.8 million under the Share Repurchase Program.

B. Summary of Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires the Company to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

On an ongoing basis, the Company evaluates its estimates and assumptions, including those related to revenue recognition, the useful lives of property and equipment, the recoverability of long-lived assets, the incremental borrowing rate for leases, and assumptions used for purposes of determining stock-based compensation, income taxes, the fair value of long-term investments and the fair value of the derivative and warrant liability, among others. The Company bases its estimates on historical experience and on various other assumptions that it believes to be reasonable, the results of which form the basis for making judgments about the carrying value of assets and liabilities.

Concentration of Credit Risk

Financial instruments that potentially expose the Company to concentrations of credit risk consist principally of cash on deposit and investments with multiple financial institutions, the balances of which frequently exceed insured limits, and accounts receivable, which are concentrated amongst a limited number of customers.

Cash and Cash Equivalents

The Company considers any highly liquid investments with an original maturity of three months or less to be cash equivalents.

Long-term Investments

The Company maintains investment securities that are classified as trading securities. These securities are carried at fair value with unrealized gains and losses included in other (expense) income on the statements of operations. The securities primarily consist of certificates of deposit, U.S. Treasury securities and U.S. government-sponsored agency securities. As of December 31, 2021, the Company held long-term investments with an aggregate fair value of $15.4 million that contained aggregate unrealized losses of $13,000. These long-term investments have been in a continuous unrealized loss position for less than 12 months and the Company expects these investments to fully recover prior to their maturity. The unrealized losses are primarily driven by interest rate changes and are not credit related. The Company had no long-term investments as of December 31, 2020.

Property and Equipment

The Company records property and equipment at cost less accumulated depreciation and amortization. Costs of renewals and improvements that extend the useful lives of the assets are capitalized. Maintenance and repairs are expensed as incurred. Depreciation is determined on a straight-line basis over the estimated useful lives of the assets, which generally range from three to ten years. Leasehold improvements are amortized over the shorter of the useful life of the asset or the term of the related lease. Upon retirement or disposition of assets, the costs and related accumulated depreciation and amortization are removed from the accounts with the resulting gains or losses, if any, reflected in the statements of operations.

Debt Issuance Costs

Debt issuance costs incurred in connection with financing arrangements are recorded as a reduction of the related debt on the balance sheet and amortized over the life of the respective financing arrangement using the effective interest method.

Offering Costs

Offering costs incurred in connection with capital offering arrangements are recorded as deferred offering costs in prepaid expenses and other currents assets on the balance sheet. Once the offering arrangement closes the deferred offering costs are reclassified as a reduction of the related net proceeds of the offering in additional paid-in capital on the balance sheet. If it's a continuous offering the deferred offering costs are amortized over the life of the respective offering arrangement using a pro-rata method which matches the costs to the funds raised from the offering. If the continuous offering arrangement terminates prior to all the deferred offering costs being recognized the deferred offering costs are written off and expensed in general and administrative expense on the statement of operations.

Supply Arrangements

The Company enters into supply arrangements for the supply of components of its products and product candidates. These arrangements also may include a share of future revenue if related products or product candidates reach commercialization. Costs under these supply arrangements, if any, are expensed as incurred (Note I).

Impairment of Long-Lived Assets

Long-lived assets to be held and used are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amounts of the assets may not be recoverable. When such events occur, the Company compares the carrying amounts of the assets to their undiscounted expected future cash flows. If the undiscounted cash flows are insufficient to recover the carrying values, an impairment loss is recorded for the difference between the carrying values and fair values of the asset. No such impairment occurred for the years ended December 31, 2021, or 2020 .

Fair Value of Financial Instruments

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, based on the Company's principal or, in absence of a principal, most advantageous market for the specific asset or liability.

The Company uses a three-tier fair value hierarchy to classify and disclose all assets and liabilities measured at fair value on a recurring basis, as well as assets and liabilities measured at fair value on a non-recurring basis, in periods subsequent to their initial measurement. The hierarchy requires the Company to use observable inputs when available, and to minimize the use of unobservable inputs, when determining fair value. The three tiers are defined as follows:

- Level 1—Observable inputs that reflect quoted market prices (unadjusted) for identical assets or liabilities in active markets;
- Level 2—Observable inputs other than quoted prices in active markets that are observable either directly or indirectly in the marketplace for identical or similar assets and liabilities; and
- Level 3—Unobservable inputs that are supported by little or no market data, which require the Company to develop its own assumptions.

Revenue Recognition

The Company commenced recognizing revenue in accordance with the provisions of ASC 606, *Revenue from Contracts with Customers* ("ASC 606"), starting January 1, 2018.

Arrangements with Multiple-Performance Obligations

From time to time, the Company enters into arrangements for research and development, manufacturing and/or commercialization services. Such arrangements may require the Company to deliver various rights, services, including intellectual property rights/licenses, research and development services, and/or commercialization services. The underlying terms of these arrangements generally provide for consideration to the Company in the form of nonrefundable upfront license fees, development and commercial performance milestone payments, royalty payments, consulting fees and/or profit sharing.

In arrangements involving more than one performance obligation, each required performance obligation is evaluated to determine whether it qualifies as a distinct performance obligation based on whether (i) the customer can benefit from the good or service either on its own or together with other resources that are readily available and (ii) the good or service is separately identifiable from other promises in the contract. The consideration under the arrangement is then allocated to each separate distinct performance obligation based on its respective relative stand-alone selling price. The estimated selling price of each deliverable reflects the Company's best estimate of what the selling price would be if the deliverable was regularly sold by the Company on a stand-alone basis or using an adjusted market assessment approach if selling price on a stand-alone basis is not available.

The consideration allocated to each distinct performance obligation is recognized as revenue when control of the related goods or services is transferred. Consideration associated with at-risk substantive performance milestones is recognized as revenue when it is probable that a significant reversal of the cumulative revenue recognized will not occur. Should there be royalties, the Company utilizes the sales and usage-based royalty exception in arrangements that resulted from the license of intellectual property, recognizing revenues generated from royalties or profit sharing as the underlying sales occur.

Licensing Agreements

The Company enters into licensing agreements with licensees that fall under the scope of ASC 606.

The terms of the Company's licensing agreements typically include one or more of the following: (i) upfront fees; (ii) milestone payments related to the achievement of development, regulatory, or commercial goals; and (iii) royalties on net sales of licensed products. Each of these payments may result in licensing revenues.

As part of the accounting for these agreements, the Company must develop estimates and assumptions that require judgment to determine the underlying stand-alone selling price for each performance obligation which determines how the transaction price is allocated among the performance obligations. Generally, the estimation of the stand-alone selling price may include such estimates as, independent evidence of market price, forecasted revenues or costs, development timelines, discount rates, and probability of regulatory success. The Company evaluates each performance obligation to determine if they can be satisfied at a point in time or over time, and it measures the services delivered to the licensee which are periodically reviewed based on the progress of the related program. The effect of any change made to an estimated input component and, therefore revenue or expense recognized, would be recorded as a change in estimate. In addition, variable consideration (e.g., milestone payments) must be evaluated to determine if it is constrained and, therefore, excluded from the transaction price.

Up-front Fees: If a license to the Company's intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, the Company recognizes revenues from the transaction price allocated to the license when the license is transferred to the licensee and the licensee 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.

Milestone Payments: At the inception of each arrangement that includes milestone payments (variable consideration), the Company evaluates whether the milestones are considered probable of being reached and estimates the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within the Company's or the licensee's control, such as non-operational developmental and regulatory approvals, are generally not considered probable of being achieved until those approvals are received. At the end of each reporting period, the Company re-evaluates the probability of achievement of milestones that are within its or the licensee's control, such as operational developmental milestones and any related constraint, and if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect collaboration revenues and earnings in the period of adjustment. Revisions to the Company's estimate of the transaction price may also result in negative licensing revenues and earnings in the period of adjustment.

KP415 License Agreement

In September 2019, the Company entered into a Collaboration and License Agreement (the "KP415 License Agreement") with Commave Therapeutics SA, an affiliate of Gurnet Point Capital ("Commave"). Under the KP415 License Agreement, the Company granted to Commave an exclusive, worldwide license to develop, manufacture and commercialize the Company's product candidates containing SDX and d-methylphenidate ("d-MPH"), including AZSTARYS, KP484, and, at the option of Commave, KP879, KP922 or any other product candidate developed by the Company containing SDX and developed to treat ADHD or any other CNS disorder (the "Additional Product Candidates" and, collectively with AZSTARYS and KP484, the "Licensed Product Candidates"). Pursuant to the KP415 License Agreement, Commave (i) paid the Company an upfront payment of $10.0 million; (ii) agreed to pay milestone payments of up to $63.0 million upon the occurrence of specified regulatory milestones related to AZSTARYS and KP484; (iii) agreed to pay additional payments of up to $420.0 million upon the achievement of specified U.S. sales milestones; and (iv) has agreed to pay the Company quarterly, tiered royalty payments ranging from a percentage in the high single digits to the mid-twenties of Net Sales (as defined in the KP415 License Agreement) in the United States and a percentage in the low to mid-single digits of Net Sales in each country outside the United States, in each case subject to specified reductions under certain conditions as described in the KP415 License Agreement. Commave is obligated to make such royalty payments on a product-by-product basis until expiration of the royalty term for the applicable product.

In April 2021, the Company entered into Amendment No. 1 to the KP415 Amendment (the "KP415 Amendment"). Pursuant to the KP415 Amendment, the Company and Commave agreed to modify the compensation terms of the KP415 License Agreement. Pursuant to the KP415 Amendment, Commave paid the Company $10.0 million in connection with the entry into the KP415 Amendment as a result of the regulatory approval of AZSTARYS in the United States which occurred on March 2, 2021. Commave also paid the Company $10.0 million following the receipt of the scheduling determination of the compound SDX by the U.S. Drug Enforcement Agency (the "DEA"), which occurred on May 7, 2021. In addition, the KP415 Amendment increased the total remaining future regulatory and sales milestone payments related to AZSTARYS to up to an aggregate of $590.0 million in payments upon the occurrence of specified regulatory milestones related to AZSTARYS and upon the achievement of specified U.S. net sales milestones. Further, under the KP415 Amendment, Commave agreed to pay the Company quarterly, tiered royalty payments that are calculated from a base royalty rate percentage in the high single digits to the mid-twenties of net sales in the United States, subject to adjustment based on annual net sales, and a percentage in the low to mid-single digits of Net Sales in each country outside the United States, in each case subject to specified reductions under certain conditions, including with respect to the final approval label, as described in the KP415 License Agreement. Commave is obligated to make such royalty payments on a product-by-product basis until expiration of the royalty term for the applicable product.

Pursuant to the KP415 Amendment, Commave and the Company also agreed to modify Commave's ROFR such that the Company's product candidate, KP922, is no longer subject to Commave' ROFR to acquire, license or commercialize any Additional Product Candidate. Commave's ROFR shall only apply to any Additional Product Candidate which contains SDX, with such ROFR expiring upon the acceptance of an NDA for such Additional Product Candidate containing SDX.

Commave also agreed to be responsible for and reimburse the Company for all of the development, commercialization and regulatory expenses incurred on the licensed products, subject to certain limitations as set forth in the KP415 License Agreement. As part of this agreement the Company is obligated to perform consulting services on behalf of Commave related to the licensed products. For these consulting services, Commave has agreed to pay the Company a set rate per hour on any consulting services performed on behalf of Commave for the benefit of the licensed products.

In accordance with the terms of the Company's March 20, 2012 Termination Agreement with Aquestive Therapeutics (formerly known as MonoSol Rx, LLC), Aquestive Therapeutics has the right to receive an amount equal to 10% of any royalty or milestone payments made to the Company related to AZSTARYS, KP484, KP879 or KP1077 under the KP415 License Agreement.

The KP415 License Agreement is within the scope of ASC 606, as the transaction represents a contract with a customer where the participants function in a customer / vendor relationship and are not exposed equally to the risks and rewards of the activities contemplated under the KP415 License Agreement. Using the concepts of ASC 606, the Company identified the grant of the exclusive, worldwide license and the performance of consulting services, which includes the reimbursement of out-of-pocket third-party research and development costs, as its only two performance obligations at inception. The Company further determined that the transaction price, at inception, under the agreement was $10.0 million upfront payment plus the fair value of the Development Costs (as defined in the KP415 License Agreement) which was allocated among the performance obligations based on their respective related stand-alone selling price.

The consideration allocated to the grant of the exclusive, worldwide license was $10.0 million, which reflects the standalone selling price. The Company utilized the adjusted market assessment approach to determine this standalone selling price which included analyzing prospective offers received from various entities throughout our licensing negotiation process as well as the consideration paid to other competitors in the market for a similar type of transaction. The Company determined that the intellectual property licensed under the KP415 License Agreement represented functional intellectual property and it has significant standalone functionality and therefore should be recognized at a point in time as opposed to over time. The revenue related to the grant of the exclusive, worldwide license was recognized at a point in time at the inception of the KP415 License Agreement.

The consideration allocated to the performance of consulting services, which includes the reimbursement of out-of-pocket third-party research and development costs, was the fair value of the Development Costs (as defined in the KP415 License Agreement), which reflects the standalone selling price. The Company utilized a blended approach which took into consideration the adjusted market assessment approach and the expected cost plus a margin approach to determine this standalone selling price. This blended approach utilized the adjusted market approach and expected cost plus margin approach to value the performance of consulting services which included analyzing hourly rates of vendors in the market who perform similar services to those of the Company to develop a range and then analyzing the average cost per hour of our internal resources and applying a margin which placed the value in the median of the previously identified range. For the reimbursement of out-of-pocket third-party research and development costs the Company utilized the expected cost plus a margin approach, which included estimating the actual out-of-pocket cost the Company expects to pay to third-parties for research and development costs and applying a margin, if necessary. The Company determined that no margin was necessary for these out-of-pocket third-party research and development costs as these are purely pass-through costs and the margin for managing these third-party activities is included within the value of the performance of consulting services. The Company determined that the performance of consulting services, including reimbursement of out-of-pocket third-party research and development costs, is a performance obligation that is satisfied over time as the services are performed and the reimbursable costs are paid. As such, the revenue related to the performance obligation will be recognized as the consulting services are performed and the services associated with the reimbursable out-of-pocket third-party research and development costs are incurred and paid by the Company, in accordance with the practical expedient allowed under ASC 606 regarding an entity's right to consideration from a customer in an amount that corresponds directly to the value to the customer of the entity's performance completed to date. As discussed above, the combination of the standalone selling price of these consulting services and certain out-of-pocket third-party research and development costs for AZSTARYS was the fair value of the Development Costs at inception. These Development Costs effectively created a cap on certain consulting services and out-of-pocket third-party research and development costs identified in the initial product development plan for AZSTARYS which was anticipated at the inception date of the KP415 License Agreement. As of December 31, 2020, the Company had recognized all of the consulting services and out-of-pocket third-party research and development costs under this cap.

Under the KP415 License Agreement, Commave was granted an exclusive right to first negotiation whereby upon completion of a Phase 1 proof-of-concept study, the Company and Commave may negotiate the economic terms under which certain Additional Products may be included as a Product (both as defined in the KP415 License Agreement) under the KP415 License Agreement (the "Additional Product Option"). In addition to the Additional Product Option, Commave was also granted a right of first refusal ("ROFR") to acquire, license and/or commercialize any of the Additional Product Candidates should they choose not to exercise the Additional Product Option. Should Commave choose to exercise the Additional Product Option on any Additional Product Candidates, Commave and the Company shall negotiate in good faith regarding the economic terms of such Additional Product Candidate. Further, should Commave exercise the ROFR on any Additional Product Candidate, the economic terms of the agreement shall be the same as those offered to the third-party. Under ASC 606 an option to acquire additional goods or services gives rise to a performance obligation if the option provides a material right to the customer. The Company concluded that the above-described Additional Product Option and ROFR do not constitute material rights to the customer as Commave would acquire the goods or services at a to be negotiated price, which the Company expects to approximate fair value and therefore Commave would not receive a material discount on these goods or services compared to market rates.

The Company is entitled to additional payments from Commave conditioned upon the achievement of specified regulatory milestones related to AZSTARYS and KP484 and the achievement of certain U.S. sales milestones. Further, Commave will pay the Company quarterly, tiered royalty payments ranging from a percentage in the high single digits to mid-twenties of Net Sales (as defined in the KP415 License Agreement) in the United States and a percentage in the low to mid-single digits of Net Sales in each country outside of the U.S., in each case subject to specified reductions under certain conditions as described in the KP415 License Agreement. The Company concluded that these regulatory milestones, sales milestones and royalty payments each contain a significant uncertainty associated with a future event. As such, these milestone and royalty payments are constrained at contract inception and are not included in the transaction price as the Company could not conclude that it is probable a significant reversal in the amount of cumulative revenue recognized will not occur surrounding these milestone payments. At the end of each reporting period, the Company updates its assessment of whether the milestone and royalty payments are constrained by considering both the likelihood and magnitude of the potential revenue reversal.

For example, in May 2020, the FDA accepted the Company's NDA for AZSTARYS. Per the KP415 License Agreement, the Company received a regulatory milestone payment of $5.0 million following the FDA's acceptance of the AZSTARYS NDA. Since the FDA accepted the Company's NDA for AZSTARYS the constraint was removed and revenue recognized. The associated revenue was allocated among the two performance obligations identified at contract inception. Since both performance obligations were satisfied as of the end of the second quarter of 2020 the full $5.0 million payment was recognized as revenue during the second quarter of 2020.

Per the KP415 Amendment, the Company earned a regulatory milestone payment of $10.0 million following the FDA's approval of the AZSTARYS NDA, in March 2021, as well as $10.0 million following the DEA's scheduling of SDX in May 2021. Since the FDA approved the NDA for AZSTARYS and the DEA scheduled SDX, the constraints were removed and revenue recognized. The associated revenue was allocated among the two performance obligations identified at contract inception. Since both performance obligations were satisfied as of the end of each respective quarter of 2021, the full $10.0 million for each milestone was recognized as revenue in the statements of operations for the first quarter and second quarter of 2021, respectively. In accordance with ASC 340-40, *Contracts with Customers*, the Company recognized $1.0 million, respectively, of royalty costs due to payment to Aquestive related to the regulatory milestones earned and recorded it in the item titled royalty and direct contract acquisition costs in the statements of operations for first and second quarter of 2021.

For the years ended December 31, 2021, and 2020, the Company recognized revenue under the KP415 License Agreement of $20.9 million and $7.3 million, respectively. There was no deferred revenue related to this agreement as of December 31, 2021, or 2020.

Consulting Arrangements

The Company enters into consulting arrangements with third parties that fall under the scope of ASC 606. These arrangements may require the Company to deliver various rights, services, including research and development services, regulatory services and/or commercialization support services. The underlying terms of these arrangements generally provide for consideration to the Company in the form of consulting fees and reimbursements of out-of-pocket third-party research and development, regulatory and commercial costs.

Corium Consulting Agreement

In July 2020, the Company entered into a consultation services arrangement (the "Corium Consulting Agreement") with Corium, Inc. ("Corium") under which Corium engaged the Company to guide the product development and regulatory activities for certain current and potential future products in Corium's portfolio, as well as continue supporting preparation for the potential commercial launch of AZSTARYS (together, "Corium Consulting Services"). Corium is a portfolio company of Gurnet Point Capital and was tasked by Commave to lead all commercialization activities for AZSTARYS under the KP415 License Agreement, as discussed above.

Under the Corium Consulting Agreement, the Company is entitled to receive payments from Corium of up to $15.6 million, $13.6 million of which will be paid in quarterly installments through March 31, 2022. The remaining $2.0 million was conditioned upon the approval by the FDA of the NDA for Corium's product candidate, ADLARITY. This $2.0 million was earned in the first quarter of 2022. Corium also agreed to be responsible for and reimburse the Company for all development, commercialization and regulatory expenses incurred as part of the performance of the Corium Consulting Services.

The Corium Consulting Agreement is within the scope of ASC 606, as the transaction represents a contract with a customer where the participants function in a customer / vendor relationship and are not exposed equally to the risks and rewards of the activities contemplated under the Corium Consulting Agreement. Using the concepts of ASC 606, the Company identified the performance of consulting services, which includes the reimbursement to the Company of third-party pass-through costs, as its only performance obligation at inception. The Company further determined that the transaction price, at inception, under the agreement was $13.6 million which is the fair value of the consulting services, including the reimbursement of third-party pass-through costs. The Company concluded that the regulatory milestone contains a significant uncertainty associated with a future event. As such, this milestone is constrained at contract inception and is not included in the transaction price as the Company could not conclude that it is probable a significant reversal in the amount of cumulative revenue recognized will not occur surrounding these milestone payments. At the end of each reporting period, the Company updates its assessment of whether the milestone is constrained by considering both the likelihood and magnitude of the potential revenue reversal.

The Company determined that the performance of consulting services, including reimbursement of third-party pass-through costs, is a performance obligation that is satisfied over time as the services are performed and the reimbursable costs are paid. As such, the revenue related to the performance obligation will be recognized as the consulting services are performed and the services associated with the reimbursable third-party pass-through costs are incurred and paid by the Company, in accordance with the practical expedient allowed under ASC 606 regarding an entity's right to consideration from a customer in an amount that corresponds directly to the value to the customer of the entity's performance completed to date. As of December 31, 2021, the Company has recognized approximately 85% of the consulting services and third-party pass-through costs under the Corium Consulting Agreement.

For the years ended December 31, 2021, and 2020, the Company recognized revenue under the Corium Consulting Agreement of $7.7 million and $3.9 million, respectively. As of December 31, 2021, and 2020, the Company had deferred revenue related to this agreement of $0.4 million and $0.1 million, respectively.

Other Consulting Arrangements

For the years ended December 31, 2021, and 2020, the Company recognized revenue under other consulting arrangements of $0.1 million and $1.7 million, respectively. There was no deferred revenue from other consulting arrangements as of December 31, 2021, or 2020.

Accounts and Other Receivables

Accounts and other receivables consist of receivables under the KP415 License Agreement and Corium Consulting Agreement, as well as receivables related to other consulting arrangements, income tax receivables and other receivables due to the Company. Receivables under the KP415 License Agreement and Corium Consulting Agreement are recorded for amounts due to the Company related to reimbursable third-party costs and performance of consulting services. These receivables, as well as the receivables related to other consulting arrangements, are evaluated to determine if any reserve or allowance should be established at each reporting date. As of December 31, 2021, the Company had receivables related to the Corium Consulting Agreement of $1.2 million, KP415 License Agreement of $0.1 million and other consulting arrangements of $0.1 million. As of December 31, 2020, the Company had receivables related to the Corium Consulting Agreement of $2.1 million and other consulting arrangements of $0.4 million. As of December 31, 2021, and 2020, no reserve or allowance for doubtful accounts has been established.

Research and Development

Major components of research and development costs include cash compensation, stock-based compensation, depreciation and amortization expense on research and development property and equipment, costs of preclinical studies, clinical trials and related clinical manufacturing, costs of drug development, costs of materials and supplies, facilities cost, overhead costs, regulatory and compliance costs, and fees paid to consultants and other entities that conduct certain research and development activities on the Company’s behalf. Costs incurred in research and development are expensed as incurred.

The Company records nonrefundable advance payments it makes for future research and development activities as prepaid expenses. Prepaid expenses are recognized as expense in the statements of operations as the Company receives the related goods or services.

The Company enters into contractual agreements with third-party vendors who provide research and development, manufacturing, and other services in the ordinary course of business. Some of these contracts are subject to milestone-based invoicing and services are completed over an extended period of time. The Company records liabilities under these contractual commitments when an obligation has been incurred. This accrual process involves reviewing open contracts and purchase orders, communicating with the applicable personnel to identify services that have been performed and estimating the level of service performed and the associated cost when the Company has not yet been invoiced or otherwise notified of actual cost. The majority of the service providers invoice the Company monthly in arrears for services performed. The Company makes estimates of the accrued expenses as of each balance sheet date based on the facts and circumstances known. The Company periodically confirms the accuracy of the estimates with the service providers and make adjustments, if necessary.

Patent Costs

Patent costs, including related legal costs, are expensed as incurred and recorded within general and administrative expenses on the statements of operations.

Income Taxes

The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the financial reporting and tax basis of assets and liabilities, as well as for operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using the tax rates that are expected to apply to taxable income for the years in which those tax assets and liabilities are expected to be realized or settled. Valuation allowances are recorded to reduce deferred tax assets to the amount the Company believes is more likely than not to be realized.

Uncertain tax positions are recognized only when the Company believes it is more likely than not that the tax position will be upheld on examination by the taxing authorities based on the merits of the position. The Company recognizes interest and penalties, if any, related to unrecognized income tax uncertainties in income tax expense. The Company did not have any accrued interest or penalties associated with uncertain tax positions as of December 31, 2021, and 2020.

The Company files income tax returns in the United States for federal and various state jurisdictions. With few exceptions, the Company is no longer subject to U.S. federal and state and local income tax examinations for years prior to 2015, although carryforward attributes that were generated prior to 2017 may still be adjusted upon examination by the Internal Revenue Service if used in a future period. No income tax returns are currently under examination by taxing authorities.

Stock-Based Compensation

The Company measures and recognizes compensation expense for all stock-based payment awards made to employees, officers and directors based on the estimated fair values of the awards as of the grant date. The Company records the value of the portion of the award that is ultimately expected to vest as expense over the requisite service period. The Company also accounts for equity instruments issued to non-employees using a fair value approach under Accounting Standards Codification ("ASC") subtopic 505-50. The Company values equity instruments and stock options granted using the Black-Scholes option pricing model.

Basic and Diluted Net Loss per Share of Common Stock

The Company uses the two-class method to compute net loss per common share because the Company has issued securities, other than common stock, that contractually entitle the holders to participate in dividends and earnings of the Company. The two-class method requires earnings for the period to be allocated between common stock and participating securities based upon their respective rights to receive distributed and undistributed earnings. Holders of each series of the Company’s convertible preferred stock and select warrants are entitled to participate in distributions, when and if declared by the board of directors, that are made to common stockholders and, as a result, are considered participating securities.

Segment and Geographic Information

Operating segments are defined as components of an enterprise (business activity from which it earns revenue and incurs expenses) for which discrete financial information is available and regularly reviewed by the chief operating decision maker ("CODM") in deciding how to allocate resources and in assessing performance. The Company’s CODM is its Chief Executive Officer. The Company views its operations and manages its business as a single operating and reporting segment. All assets of the Company were held in the United States as of December 31, 2021, and 2020.

Application of New or Revised Accounting Standards—Adopted

From time to time, the Financial Accounting Standards Board (the "FASB") or other standard-setting bodies issue accounting standards that are adopted by the Company as of the specified effective date.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments—Credit Losses (Topic 326)—Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13"), which replaces the incurred loss impairment methodology with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. This update applies to all entities holding financial assets and net investment in leases that are not accounted for at fair value through net income. The amendments affect loans, debt securities, trade receivables, net investments in leases, off-balance-sheet credit exposures, reinsurance receivables, and any other financial assets not excluded from the scope that have the contractual right to receive cash. This guidance is effective for financial statements issued for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. The adoption of ASU 2016-13 did not have a material impact on the Company's financial statements and disclosures.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820)—Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement* ("ASU 2018-13"), which modifies the disclosure requirements on fair value measurements in Topic 820, Fair Value Measurement, based on the concepts in the FASB Concepts Statement, Conceptual Framework for Financial Reporting—Chapter 8: Notes to Financial Statements, which the FASB finalized on August 28, 2018, including the consideration of costs and benefits. This update applies to all entities that are required, under existing U.S. GAAP, to make disclosures about recurring or nonrecurring fair value measurements. This guidance is effective for financial statements issued for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. The amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurement uncertainty should be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. The adoption of ASU 2018-13 did not have a material impact on the Company's financial statements and disclosures.

Application of New or Revised Accounting Standards*—Not *Yet Adopted

In August 2020, the FASB issued ASU 2020-06, *Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40); Accounting for Convertible Instruments and Contracts in an Entity's Own Equity* ("ASU 2020-06"), which addresses issues identified as a result of the complexities associated with applying U.S. GAAP for certain financial instruments with characteristics of liabilities and equity. This update addresses, among other things, the number of accounting models for convertible debt instruments and convertible preferred stock, targeted improvements to the disclosures for convertible instruments and earnings-per-share ("EPS") guidance and amendments to the guidance for the derivatives scope exception for contracts in an entity's own equity, as well as the related EPS guidance. This update applies to all entities that issue convertible instruments and/or contracts in an entity's own equity. This guidance is effective for financial statements issued for fiscal years beginning after December 15, 2021, and interim periods within those fiscal years. FASB specified that an entity should adopt the guidance as of the beginning of its annual fiscal year. The Company does not believe the adoption of ASU 2020-06 will have a material impact on the Company's financial statements and disclosures.

In May 2021, the FASB issued ASU 2021-04, *Earnings Per Share (Topic 260), Debt— Modifications and Extinguishments (Subtopic 470-50), Compensation—Stock Compensation (Topic 718), and Derivatives and Hedging— Contracts in Entity's Own Equity (Subtopic 815-40); Issuer's Accounting for Certain Modifications or Exchanges of Freestanding Equity-Classified Written Call Options, a consensus of the FASB Emerging Issues Task Force* ("ASU 2021-04"), which aims to clarify and reduce diversity in issuer's accounting for modifications or exchanges of freestanding equity-classified written call options that remain equity classified after modification or exchange. This update applies to all entities that issue freestanding written call options that are classified in equity. This guidance is effective for financial statements issued for fiscal years beginning after December 15, 2021, and interim periods within those fiscal years. FASB specified that an entity should adopt the guidance as of the beginning of its annual fiscal year. The Company does not believe the adoption of ASU 2021-04 will have a material impact on the Company's financial statements and disclosures.

C. Accounts and Other Receivables

Accounts and other receivables consist of the following (in thousands):

	December 31,	
	2021	2020
Accounts receivable	$ 1,421	$ 2,442
Other receivables	107	137
Total accounts and other receivables	$ 1,528	$ 2,579

D. Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consist of the following (in thousands):

	December 31,	
	2021	2020
Prepaid insurance	$ 637	$ 453
Prepaid offering costs	293	825
Other prepaid expenses and current assets	252	203
Total prepaid expenses and other current assets	$ 1,182	$ 1,481

E. Property and Equipment

Property and equipment consists of the following (in thousands):

	December 31,	
	2021	2020
Laboratory equipment	$ 645	$ 643
Furniture and office equipment	71	71
Computers and hardware	338	296
Leasehold improvements	724	724
Finance lease right-of-use assets	1,031	1,031
Total property and equipment	2,809	2,765
Less: accumulated depreciation and amortization	(1,925)	(1,726)
Property and equipment, net	$ 884	$ 1,039

The estimated useful lives of property and equipment are as follows:

Asset Category	Useful Life (in years)
Laboratory equipment	10
Furniture and office equipment	5 - 10
Computers and hardware	3 - 7
Leasehold improvements	9

Depreciation and amortization expense, including amounts pertaining to assets held under finance leases, was approximately $257,000 and $273,000 for the years ended December 31, 2021, and 2020, respectively.

F. Accounts Payable and Accrued Expenses

Accounts payable and accrued expenses consist of the following (in thousands):

	December 31,	
	2021	2020
Accrued interest	$ -	$ 1,158
Accrued banking fees	700	700
Accrued severance	-	53
Accrued payroll	1,054	1,299
Accrued professional fees	259	1,639
Accounts payable	516	1,174
Other accrued expenses	509	624
Total accounts payable and accrued expenses	$ 3,038	$ 6,647

G. Debt Obligations

As of December 31, 2021, the Company had no convertible notes outstanding. As of December 31, 2020, the Company had convertible notes outstanding in the aggregate principal amount of $68.2 million.

Deerfield Facility Agreement

In June 2014, the Company entered into a $60 million multi-tranche credit facility (the "Deerfield Facility Agreement") with Deerfield Private Design Fund III, LP ("Deerfield"). At the time the Company entered into the Deerfield Facility Agreement, the Company borrowed the first tranche, which consisted of a term loan of $15 million (the "Term Note") and a senior secured loan of $10 million (the "Deerfield Convertible Note"). Deerfield was able to convert any portion of the outstanding principal and any accrued but unpaid interest on the Deerfield Convertible Note into shares of the Company's common stock at an initial conversion price of $5.85 per share (the "Deerfield Note Put Option"). After giving effect to the Reverse Stock Split effected in December 2020, the conversion price became $93.60.

The Deerfield Convertible Note originally bore interest at 9.75% per annum but was subsequently reduced to 6.75%. Interest accrued on the outstanding balance under the Deerfield Convertible Note was due quarterly in arrears. The Company originally had to repay one-third of the outstanding principal amount of the Deerfield Convertible Note on the fourth and fifth anniversaries of the Deerfield Facility Agreement (June 2018 and June 2019). In June 2018, Deerfield agreed to convert approximately $3.3 million of the principal amount then due, plus approximately $0.2 million of accrued interest, into 37,410 shares of our common stock (as discussed below in the section entitled "Facility Agreement Waiver and Fifth Amendment to Senior Secured Convertible Note"). In September 2019, the Company entered into an amendment with Deerfield in order to (i) reduce the interest rate applicable under the Deerfield Facility Agreement from 9.75% to 6.75%, (ii) provide for "payment in kind" of interest on the Loans (as defined in the Deerfield Facility Agreement), and (iii) defer the Loan payments due pursuant to the Deerfield Facility Agreement until June 1, 2020 (as discussed below in the section entitled "2021 Note Exchange Effected in September 2019"). In December 2019, the Company entered into another amendment with Deerfield in order to (i) defer the Loan payments due pursuant to the Deerfield Facility Agreement until March 31, 2021, and (ii) allow for the entries of additional debt and debt holders under the Deerfield Facility Agreement (as discussed below in the section entitled "2021 Note Exchange Effected in December 2019"). The Company was also obligated to repay principal of the Deerfield Convertible Note in the amount of approximately $7.0 million plus any capitalized interest to date on March 31, 2021. Prepayment of the outstanding balance was not allowed without written consent of Deerfield.

Pursuant to the Deerfield Facility Agreement, the Company issued to Deerfield a warrant to purchase 14,423,076 shares of Series D Preferred at an initial exercise price of $0.78 per share, which is exercisable until June 2, 2024 (the "Deerfield Warrant"). Upon completion of the Company's initial public offering, the Deerfield Warrant automatically converted into a warrant to purchase 1,923,077 shares of the Company's common stock at an exercise price of $5.85 per share. After giving effect to the Reverse Stock Split effected in December 2020, the shares issuable upon conversion of the warrant became 120,192 shares of common stock, and the exercise price of the Deerfield Warrant became $93.60 per share, which in January 2021 and June 2021 was further adjusted to $46.25 and $38.34 per share, respectively, in connection with the Company entering into the January 2021 and June 2021 Inducement Transactions (as defined in Note K) each of which triggered the anti-dilution provisions of the Deerfield Warrant. This warrant qualifies as a participating security under ASC Topic 260, Earnings per Share, and is treated as such in the net loss per share calculation (Note O). If a Major Transaction occurs (as defined in the Deerfield Facility Agreement) Deerfield may require the Company to redeem the Deerfield Warrant for a cash amount equal to the Black-Scholes value of the portion of the Deerfield Warrant to be redeemed (the "Warrant Put Option").

The Company recorded the fair value of the shares of Series D Preferred to debt issuance costs on the date of issuance. The Company also recorded the fair value of the Deerfield Warrant and the embedded Warrant Put Option to debt discount on the date of issuance. The debt issuance costs and debt discount were amortized over the term of the related debt and the expense was recorded as interest expense related to amortization of debt issuance costs and discount in the statements of operations. In the first quarter of 2021, the debt was extinguished, through a series of debt payments and a conversion of debt principal and interest to Series B-2 Preferred Stock. As a result of the debt extinguishment, the associated discount and debt issuance costs were written off and recorded as a loss on extinguishment.

Pursuant to the Deerfield Facility Agreement, the Company was not able to enter into specified transactions, including a debt financing in the aggregate value of $750,000 or more, other than permitted indebtedness under the Deerfield Facility Agreement, a merger, an asset sale or any other change of control transaction or any joint venture, partnership or other profit-sharing arrangement, without the prior approval of the Required Lenders (as defined in the Deerfield Facility Agreement). Additionally, if the Company were to enter into a major transaction, including a merger, consolidation, sale of substantially all of its assets or other change of control transaction, Deerfield would have had the ability to demand that prior to consummation of such transaction the Company repay all outstanding principal and accrued interest of any notes issued under the Deerfield Facility Agreement. Under each warrant issued pursuant to the Deerfield Facility Agreement, Deerfield has the right to demand that the Company redeem the warrant for a cash amount equal to the Black-Scholes value of a portion of the warrant upon the occurrence of specified events, including a merger, an asset sale or any other change of control transaction.

Issuance of 5.50% Senior Convertible Notes and Third Amendment to Senior Secured Convertible Note and Warrant

In February 2016, the Company issued $86.3 million aggregate principal amount of its 5.50% Senior Convertible Notes due 2021 (the "2021 Notes") to Cowen and RBC Capital Markets, LLC, as representatives of the several initial purchasers (the "Initial Purchasers"), who subsequently resold the 2021 Notes to qualified institutional buyers (the "Note Offering") in reliance on the exemption from registration provided by Rule 144A under the Securities Act of 1933, as amended (the "Securities Act").

The 2021 Notes were issued pursuant to an indenture, dated as of February 9, 2016 (the "Indenture"), between the Company and U.S. Bank National Association, as trustee (the "Trustee"). Interest on the 2021 Notes was payable semi-annually in cash in arrears on February 1 and August 1 of each year, beginning on August 1, 2016, at a rate of 5.50% per year. The 2021 Notes had an original maturity of February 1, 2021 unless earlier converted or repurchased.

The net proceeds from the Note Offering were approximately $82.8 million, after deducting the Initial Purchasers' discount and estimated offering expenses. Concurrent with the Note Offering, the Company used approximately $18.6 million of the net proceeds from the Note Offering to repay in full the Term Note, plus all accrued but unpaid interest, a make-whole interest payment and a prepayment premium on the Term Note.

The 2021 Notes were not redeemable prior to the maturity date, and no sinking fund was provided for the 2021 Notes. The 2021 Notes were convertible at an initial conversion rate of 58.4454 shares of the Company's common stock per $1,000 principal amount of the 2021 Notes, subject to adjustment under the Indenture, which is equal to an initial conversion price of approximately $17.11 per share of common stock. After giving effect to the Reverse Stock Split effected in December 2020, the conversion rate of the 2021 Notes would have been approximately 3.6528 shares of the Company's common stock per $1,000 principal amount of the 2021 Notes, which is equal to a conversion price of approximately $273.76 per share.

If the Company underwent a "fundamental change" (as defined in the Indenture), holders could have required that the Company repurchase for cash all or any portion of their 2021 Notes at a fundamental change repurchase price equal to 100% of the principal amount of the 2021 Notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date.

The Indenture included customary terms and covenants, including certain events of default after which the 2021 Notes may have become due and payable immediately.

As described in more detail below, in multiple exchanges occurring in December 2019 and January 2020, all outstanding 2021 Notes were exchanged by the holders thereof for either shares of our common stock or senior secured convertible promissory notes issued under the terms of the Deerfield Facility Agreement.

2021 Note Exchange Effected in December 2019

In December 2019, the Company entered into the December 2019 Exchange Agreement and Amendment to Facility Agreement, Senior Secured Convertible Notes and Warrants (the "December 2019 Exchange Agreement") with the Deerfield Lenders and Delaware Street Capital Master Fund, L.P. ("DSC" and, collectively with the Deerfield Lenders, the "December 2019 Holders"). Under the December 2019 Exchange Agreement, the Company issued senior secured convertible promissory notes under the Deerfield Facility Agreement in the aggregate principal amount of approximately $71.4 million (the "December 2019 Notes"), in exchange for the cancellation of an aggregate of approximately $71.4 million principal amount and accrued interest of the Company's 2021 Notes. Upon entering into the December 2019 Exchange Agreement, the Company agreed to pay the December 2019 Holders, in the aggregate, an interest payment of approximately $0.7 million which represents 50% of the accrued interest, as of December 18, 2019, on the 2021 Notes owned by the December 2019 Holders. The remainder of such interest was included in the principal amount of the December 2019 Notes.

The December 2019 Notes bore interest at 6.75% per annum. The December 2019 Notes were convertible into shares of the Company's common stock at an initial conversion price of $17.11 per share (which represented the conversion price of the 2021 Notes), subject to adjustment in accordance with the terms of the December 2019 Notes. After giving effect to the Reverse Stock Split effected in December 2020, the conversion price of the December 2019 Notes would have been $273.76 per share. The Company subsequently amended the December 2019 Notes to provide that such notes would have been convertible into shares of the Company's common stock at a conversion price of $93.60 per share (which represented the conversion price of the Deerfield Convertible Note). The conversion price of the December 2019 Notes would have been adjusted downward if the Company issued or sold any shares of common stock, convertible securities, warrants or options at a sale or exercise price per share less than the greater of the December 2019 Notes' conversion price or the closing sale price of the Company's common stock on the last trading date immediately prior to such issuance, or, in the case of a firm commitment underwritten offering, on the date of execution of the underwriting agreement between the Company and the underwriters for such offering. However, if the Company effected an "at the market offering" as defined in Rule 415 of the Securities Act, of its common stock, the conversion price of the December 2019 Notes would have been adjusted downward pursuant to this anti-dilution adjustment only if such sales were made at a price less than $93.60 per share, provided that this anti-dilution adjustment would not have applied to any sales made under (x) the 2020 ELOC Agreement, (y) the ATM Agreement, or (z) the September 2019 Exchange Agreement (as amended). Notwithstanding anything to the contrary in the December 2019 Notes, the anti-dilution adjustment of such notes would not have resulted in the conversion price of the December 2019 Notes being less than $9.328 per share. The December 2019 Notes were convertible at any time at the option of the holders thereof, provided that a holder of a December 2019 Note was prohibited from converting such note into shares of the Company's common stock if, as a result of such conversion, such holder (together with certain affiliates and "group" members) would have beneficially owned more than 4.985% of the total number of shares of common stock then issued and outstanding. However, the December 2019 Note issued to DSC, due to the fact DSC was a beneficial owner of more than 4.985% of the total number of shares of the Company's common stock then issued and outstanding, had a beneficial ownership cap equal to 19.985% of the total number of shares of the Company's common stock then issued and outstanding. Pursuant to the December 2019 Notes, the December 2019 Holders had the option to demand repayment of all outstanding principal, and any unpaid interest accrued thereon, in connection with a Major Transaction (as defined in the December 2019 Notes), which included, among others, any acquisition or other change of control of the Company; a liquidation, bankruptcy or other dissolution of the Company; or if at any time after March 31, 2021, shares of the Company's common stock are not listed on an Eligible Market (as defined in the December 2019 Notes). The December 2019 Notes were subject to specified events of default, the occurrence of which would have entitled the December 2019 Holders to immediately demand repayment of all outstanding principal and accrued interest on the December 2019 Notes. Such events of default included, among others, failure to make any payment under the December 2019 Notes when due, failure to observe or perform any covenant under the Deerfield Facility Agreement (as defined below) or the other transaction documents related thereto (subject to a standard cure period), the failure of the Company to be able to pay debts as they come due, the commencement of bankruptcy or insolvency proceedings against the Company, a material judgement levied against the Company and a material default by the Company under the Deerfield Warrant, the December 2019 Notes or the Deerfield Convertible Note.

The December 2019 Exchange Agreement amended the Deerfield Facility Agreement in order to, among other things, (i) provide for the Deerfield Facility Agreement to govern the December 2019 Notes received by the December 2019 Holders pursuant to the December 2019 Exchange Agreement, (ii) extend the maturity of the Deerfield Convertible Note from February 14, 2020 and June 1, 2020, as applicable, to March 31, 2021, (iii) defer interest payments on the Deerfield Convertible Note until March 31, 2021 (which such interest shall accrue as "payment-in-kind" interest), (iv) designate DSC as a Lender under (and as defined in the Deerfield Facility Agreement), (v) name Deerfield as the "Collateral Agent" for all Lenders and (vi) modify the terms and conditions under which the Company may issue additional pari passu and subordinated indebtedness under the Deerfield Facility Agreement (subject to certain conditions specified in the Deerfield Facility Agreement).

The December 2019 Exchange Agreement also amended and restated the Deerfield Convertible Note to conform the definitions of "Eligible Market" and "Major Transactions" to the definition in the December 2019 Notes, to remove provisions that were only applicable prior to the Company's initial public offering and to make certain other changes to conform to the December 2019 Notes. The conversion price for the Deerfield Convertible Note remained $93.60 per share, subject to adjustment on the same basis as the December 2019 Notes.

The December 2019 Exchange Agreement also amended the Deerfield Warrant to conform the definitions of "Eligible Market" and "Major Transaction" in the Deerfield Warrant with the definitions of such terms in the December 2019 Notes.

The December 2019 Exchange Agreement contained customary representations, warranties and covenants made by the Company and the December 2019 Holders, including a covenant of the Company to, upon request, use commercially reasonable efforts to use its technology to discover a product based upon a compound that may be identified by the Deerfield Lenders in a manner that is reasonably acceptable to the Deerfield Lenders, or one of their affiliates, with the terms of such discovery plan, including the Company's compensation thereunder, to be mutually agreed to by the parties.

In connection with entering into the December 2019 Exchange Agreement, on December 18, 2019, the Company amended and restated that certain Guaranty and Security Agreement, dated June 2, 2014, by and between the Company and the other parties thereto (the "GSA") to, among other things, (i) provide that all of the notes will be secured by the liens securing the indebtedness under the Deerfield Facility Agreement, and (ii) name Deerfield as the "Collateral Agent" under the GSA.

In connection with entering into the December 2019 Exchange Agreement, the Company also entered into an amendment (the "September 2019 Exchange Agreement Amendment") to the September 2019 Exchange Agreement to, among other things, (i) amend and restate Annex I of the September 2019 Exchange Agreement to allow the Deerfield Lenders to effect optional exchanges of the December 2019 Notes and the Deerfield Convertible Note under the terms of the September 2019 Exchange Agreement; (ii) amend the common stock exchange price under the September 2019 Exchange Agreement to be a per share price equal to the greater of (x) $0.60, subject to adjustment to reflect stock splits and similar events, or (y) the average of the volume-weighted average prices of the Company's common stock on each of the 15 trading days immediately preceding such exchange, (iii) provide that no more than 28,439,015 of shares of the Company's common stock shall be issued pursuant to optional exchanges under the September 2019 Exchange Agreement (whether by common stock exchange or upon conversion of Series B-2 Shares (as defined in the September 2019 Exchange Agreement Amendment)), subject to adjustment to reflect stock splits and similar events and (iv) eliminate limitations regarding the timing and aggregate amount of principal which may be exchanged under the September 2019 Exchange Agreement. These changes in the September 2019 Exchange Agreement Amendment significantly modified the Optional Exchange Principal Amount, as such after giving effect to the September Exchange Agreement Amendment the Optional Exchange Principal Amount ceases to exist the new optional exchanges are referred to as the Deerfield Optional Conversion Feature. After giving effect to the Reverse Stock Split effected in December 2020, the exchange price of the Deerfield Optional Conversion Feature would have been $9.60 per share or the average of the volume-weighted average price of the common stock on the principal securities exchange or trading market on which the common stock is then trading on each of the 15 trading days immediately preceding such exchange and the shares of the Company's common stock issued pursuant to the optional exchanges would have been 1,777,437 shares of common stock.

In connection with entering into the September 2019 Amendment, the Company filed an amendment to the Series B-2 Certificate of Designation (the "Series B-2 Certificate of Designation Amendment") with the Secretary of State of the State Delaware. The Series B-2 Certificate of Designation Amendment provides that each share of the Company's Series B-2 preferred stock is convertible into shares of the Company's common stock at a per share price equal to the common stock exchange price under the September 2019 Exchange Agreement, which equals the greater of (i) $9.60 (subject to adjustment to reflect stock splits and similar events), or (ii) the average of the volume-weighted average prices of the Company's common stock on each of the 15 trading days immediately preceding such exchange.

As of September 30, 2020, the Deerfield Lenders had converted all $17.1 million of principal under the December 2019 Notes into all 1,777,437 shares of common stock available under the Deerfield Optional Conversion Feature.

The Company determined the changes to the Deerfield Convertible Note met the definition of a troubled debt restructuring under ASC 470-60, Troubled Debt Restructurings by Debtors, as the Company was experiencing financial difficulties and Deerfield granted a concession. The amendments to the terms of the Deerfield Convertible Note resulted in no gain on restructuring because the total cash outflows required under the amended Deerfield Convertible Note exceeded the carrying value of the original Deerfield Convertible Note immediately prior to amendment. Prospectively, the Deerfield Convertible Note will continue to be carried net of the associated discount and debt issuance costs which will be amortized and recorded as interest expense using a modified effective interest rate based on the amendments.

The changes to the 2021 Notes, under the December 2019 Exchange Agreement, referred to after as the December 2019 Notes, were accounted for as a debt modification, prospectively, the December 2019 Notes will be carried net of the associated discount and debt issuance costs which will be amortized and recorded as interest expense using a modified effective interest rate based on the amendments.

2021 Note Exchange Effected in January 2020

In January 2020, the Company entered into the January 2020 Exchange Agreement (the "January 2020 Exchange Agreement") with M. Kingdon Offshore Master Fund, LP ("Kingdon"). Under the January 2020 Exchange Agreement, the Company issued a senior secured convertible note in the aggregate principal amount of approximately $3.0 million (the "January 2020 Note") in exchange for the cancellation of an aggregate of $3.0 million principal amount and accrued interest of the 2021 Note then owned by Kingdon. Upon entering into the January 2020 Exchange Agreement, the Company agreed to pay Kingdon an interest payment of approximately $37,000, which represents 50% of the accrued and unpaid interest, as of January 13, 2020, on Kingdon's 2021 Note. The remainder of such interest was included in the principal amount of the January 2020 Note.

The January 2020 Note was issued with substantially the same terms and conditions as the December 2019 Notes (as amended by the amendment described in more detail below).

In connection with entering into the January 2020 Exchange Agreement, the Company entered into an Amendment to Facility Agreement and December 2019 Notes and Consent (the "December 2019 Note Amendment") with the December 2019 Holders that, among other things, (i) amended the December 2019 Notes to (a) reduce the Conversion Price (as defined in the December 2019 Notes) from $17.11 to $5.85 per share and (b) increased the Floor Price (as defined in the December 2019 Notes) from $0.38 to $0.583 per share, and (ii) amended the Deerfield Facility Agreement to (x) provide for Kingdon to join the Deerfield Facility Agreement as a Lender (as defined in the Deerfield Facility Agreement) and (y) provide that the 2020 Note and shall constitute a "Senior Secured Convertible Note" (as defined in the Deerfield Facility Agreement) for purposes of the Deerfield Facility Agreement and other Transaction Documents (as defined in the Deerfield Facility Agreement). After giving effect to the Reverse Stock Split effected in December 2020, the Conversion Price became $93.60 per share and the Floor Price became $9.328 per share.

The changes to the 2021 Note, under the January 2020 Exchange Agreement, referred to after as the January 2020 Note, were accounted for as a debt modification, prospectively, the January 2020 Note will be carried net of the associated discount and debt issuance costs which will be amortized and recorded as interest expense using a modified effective interest rate based on the amendments.

December 2020 Exchange Agreement and Amendment to Facility Agreement, Notes and Investors' Rights Agreement

In December 2020, the Company entered into a December 2020 Exchange Agreement and Amendment to Facility Agreement, Notes and Investors' Rights Agreement, as amended (the "December 2020 Exchange Agreement") with the Deerfield Lenders, DSC and Kingdon (collectively, the "Facility Agreement Note Holders"). Under the December 2020 Exchange Agreement, the Company and the Facility Agreement Note Holders agreed that (a) the Company will make a cash pre-payment of a portion of principal amount of the Deerfield Convertible Note, the December 2019 Notes and the January 2020 Note (collectively, the "Facility Agreement Notes") to the Facility Agreement Note Holders (the "Debt Payment") equal to approximately $30.3 million, plus accrued interest if such payment is made on or after January 1, 2021, and (b) subject to the satisfaction or waiver of certain conditions specified in the December 2020 Exchange Agreement, including the making of the Debt Payment, issue shares of its Series B-2 Preferred Stock and warrants exercisable for shares of its common stock (the "Exchange Warrants"), in exchange for the cancellation of a portion of the principal amount of the Facility Agreement Notes owned by the Facility Agreement Note Holders in an aggregate amount equal to the Debt Payment, plus the Q4 PIK Interest Payment (as defined in the December 2020 Exchange Agreement) (such transaction, the "December 2020 Exchange").

The December 2020 Exchange Agreement amended the Facility Agreement Notes to provide that the failure of the Company's common stock to remain listed on an eligible securities market will not constitute a "Major Transaction" unless such failure occurs after March 31, 2023.

Subject to the satisfaction or waiver of certain conditions specified in the December 2020 Exchange Agreement, including the making of the Debt Payment and the consummation of the exchange, the December 2020 Exchange Agreement amended that certain Facility Agreement dated as of June 2, 2014, as amended (the "Facility Agreement"), by and among the Company and the Facility Agreement Note Holders in order to, among other things, (i) extend the maturity date of the Facility Agreement Notes to March 31, 2023, (ii) provide for cash payments of interest on the Loans (as defined in the Facility Agreement) for the periods following July 1, 2021, and (iii) provide for specified prepayment terms on the Loans.

The December 2020 Exchange Agreement amended that certain Amended and Restated Investors' Rights Agreement, dated as of February 19, 2015 (the "IRA"), by and among the Company, Deerfield and the other parties signatory thereto in order to, among other things, add Deerfield Special Situations Fund, L.P. as a party thereto and to give effect to the issuance of the Exchange Warrants and the Company's registration obligations under the December 2020 Exchange Agreement (as described in more detail below).

The Exchange Warrants issued pursuant to the December 2020 Exchange Agreement were exercisable for a number of shares of the Company's common stock equal to 75% of the shares of common stock issuable upon conversion of the Series B-2 Preferred Stock issued in the Exchange (without regard for any beneficial ownership limitations included therein). The Exercise Warrants were subject to substantially the same terms and conditions as the warrants issued to the public in the public offering of the Company's securities contemplated pursuant to a registration statement on Form S-1 (File No. 333-250945) (the "Public Offering"), with an exercise price equal to the exercise price per share of the warrants issued in the Public Offering and provided that the Facility Agreement Note Holders will be limited from exercising such Exchange Warrants if, as a result of such exercise, such holders (together with certain affiliates and "group" members of such holders) would beneficially own more than 4.985% of the total number of shares of the Company's common stock then issued and outstanding.

In anticipation of the Public Offering, and to meet the Nasdaq Listing Requirements, the Company agreed in December 2020 to restructure the December 2019 Notes and the January 2020 Note in the aggregate principal amount of $60.8 million and the Deerfield Note in the principal amount of $7.5 million (collectively the "the Facility Notes"). The total outstanding principal and accrued interest under the Facility Notes was $69.4 million as of December 31, 2020.

Under the terms of the December 2020 Exchange Agreement, the Company, on January 12, 2021, in connection with the closing of the Public Offering:

- Exchanged $31.5 million of the outstanding principal and accrued interest on the Facility Notes for (i) 31,476.98412 shares of Series B-2 Preferred Stock, and (ii) Exchange Warrants exercisable for 3,632,019 shares of the Company's common stock, and
- Made a payment of $30.3 million (the "Debt Payment"), in partial repayment of the remaining outstanding principal and accrued interest of the Facility Notes.

Following the completion of these transactions, the aggregate balance of principal and accrued interest remaining outstanding under the Facility Notes was approximately $7.6 million. With respect to this remaining outstanding balance under the Facility Notes, the December 2020 Exchange Agreement amended the terms of that debt to provide that:

- The maturity date was amended to March 31, 2023, and the debt was prepayable upon specified conditions, and
- Interest would accrue at the rate of 6.75% per annum, payable quarterly, would be added to principal until June 30, 2021, and then be payable in cash thereafter.

The changes to the Facility Notes, under the December 2020 Exchange Agreement, were accounted for as a debt extinguishment as the cash flows immediately after the December 2020 Exchange Agreement were substantially different from the cash flows immediately prior to the December 2020 Exchange Agreement and while the Company was experiencing financial difficulties it was determined that the lender did not grant a concession. As such, a loss of extinguishment related to the extinguishment of the old notes is recorded in the statement of operations for the year ended December 31, 2021, and additional debt issuance costs related the new notes were capitalized and amortized using the effective interest method through the Payoff of Facility Agreement Notes (discussed below).

The transactions contemplated under the December 2020 Exchange Agreement, including the obligation to pre-pay any portion of the Facility Agreement Notes or to complete the Exchange and the effectiveness of the amendments to the Facility Agreement, the Notes and the IRA, were subject to specified conditions of closing, including certain closing of the Public Offering, the filing of the Restated Series B-2 Certificate of Designation (as defined below) and the approval for listing of the Company's common stock, including the shares issuable upon conversion of the Series B-2 Preferred Stock and exercise of the Exchange Warrants, on the Nasdaq Capital Market.

As a condition to closing of the December 2020 Exchange Agreement, the Company filed an Amended and Restated Certificate of Designation of Preferences, Rights and Limitations of Series B-2 Convertible Preferred Stock (the "Restated Series B-2 Certificate of Designation") with the Secretary of State of the State Delaware, setting forth the preferences, rights and limitations of the Series B-2 Preferred Stock.

Each share of Series B-2 Preferred Stock had an aggregate stated value of $1,000 and was convertible into shares of the Company's common stock at a per share price equal to the price per share to the public of the Company's common stock in the Public Offering (subject to adjustment to reflect stock splits and similar events).

The Series B-2 Preferred Stock was convertible at any time on or after the PDUFA Date (as defined in the Restated Series B-2 Certificate of Designation) at the option of the holders thereof; provided that the holders thereof will be prohibited from converting shares of Series B-2 Preferred Stock into shares of the Company's common stock if, as a result of such conversion, such holders (together with certain affiliates and "group" members of such Holders) would beneficially own more than 4.985% of the total number of shares of the Company's common stock then issued and outstanding. The Series B-2 Preferred Stock is not redeemable. In the event of the Company's liquidation, dissolution or winding up or a change in control of the Company (each, a "Liquidation Event"), the holders of Series B-2 Preferred Stock will receive, prior to any distribution or payment on our common stock, an amount equal to the greater of (i) $1,000 per share (in the case of a change in control, transaction consideration with such value), or (ii) the amount (in the case of a change in control, in the form of the transaction consideration) per share each such holder would have been entitled to receive if every share of Series B-2 Preferred Stock had been converted into common stock immediately prior to such Liquidation Event, in each case, plus any declared but unpaid dividends thereon. With respect to rights upon liquidation, the Series B-2 Preferred Stock ranks senior to the common stock, on parity with any Parity Securities (as defined in the Restated Series B-2 Certificate of Designation) and junior to existing and future indebtedness. Except as otherwise required by law (or with respect to approval of certain actions involving the Company's organizational documents that adversely affect the holders of Series B-2 Preferred Stock and other specified matters regarding the rights, preferences and privileges of the Series B-2 Preferred Stock), the Series B-2 Preferred Stock does not have voting rights. The Series B-2 Preferred Stock is not subject to any price-based anti-dilution protections and does not provide for any accruing dividends but provides that holders of Series B-2 Preferred Stock will participate in any dividends on the Company's common stock on an as-converted basis (without giving effect to the limitation on conversion described above). The Restated Series B-2 Certificate of Designation also provides for partial liquidated damages in the event that the Company fails to timely convert shares of Series B-2 Preferred Stock into common stock in accordance with the Restated Series B-2 Certificate of Designation.

Payoff of Facility Agreement Notes and Termination of Facility Agreement

On February 8, 2021, the Company entered into a payoff letter with the Facility Agreement Note Holders, pursuant to which the Company agreed to pay off and thereby terminate the Facility Agreement.

Pursuant to the payoff letter, the Company paid a total of $8.0 million to the Facility Agreement Note Holders, representing the principal balance, accrued interest outstanding and a prepayment fee in repayment of the Company's outstanding obligations under the Facility Agreement.

Pursuant to the payoff letter, all outstanding indebtedness and obligations of the Company owing to the Facility Agreement Note Holders under the Facility Agreement have been paid in full. The Facility Agreement and the notes thereunder, as well as the security interests in the assets of the Company securing the Facility Agreement and note obligations, have been terminated. The Facility Agreement Note Holders will retain the warrants previously issued to them by the Company.

The Company determined the payoff letter met the liability derecognition threshold under ASC 405-20, *Liabilities - Extinguishment of Liabilities*, as the Company repaid the debt (and has been relieved of the related obligation) without entering into new debt with the Facility Agreement Note Holders and there is no other continuing debt with the Facility Agreement Note Holders. The payoff letter resulted in a loss on extinguishment of debt which is shown within other (expense) income in the statements of operations for the year ended December 31, 2021.

PPP Loan

On April 23, 2020, the Company received proceeds of $0.8 million from the PPP Loan under the PPP of the CARES Act, a portion of which may be forgiven, which the Company used to retain current employees, maintain payroll and make lease and utility payments. In May 2021, the Company received notice from the U.S. Small Business Administration that the principal and interest due under its PPP Loan had been forgiven in full. This gain on extinguishment is shown, net of the loss on extinguishment of debt discussed above, within other (expense) income in the statements of operations for the year ended December 31, 2021.

H. Commitments and Contingencies

Legal Matters

From time to time, the Company is involved in various legal proceedings arising in the normal course of business. For some matters, a liability is not probable, or the amount cannot be reasonably estimated and, therefore, an accrual has not been made. However, for such matters when it is probable that the Company has incurred a liability and can reasonably estimate the amount, the Company accrues and discloses such estimates. As of December 31, 2021, and 2020, no accruals have been made related to commitments and contingencies.

Lease Agreements

The Company has operating and finance leases for office space, laboratory facilities and various laboratory equipment, furniture and office equipment and leasehold improvements. The Company's leases have remaining lease terms of less than 1 year to approximately 4 years, some of which include options to extend the leases for up to 5 years, and some which include options to terminate the leases within 1 year.

Florida

The Company leases office space in Florida, comprised of two contiguous office suites, under non-cancelable operating leases, which expire in August 2025 and February 2026, as to each space respectively, and include the right to extend the term of the leases for two successive five-year terms upon expiration.

In February 2020, the Company agreed to sublease office space in Florida, comprised of one of the two contiguous suites, under a non-cancelable operating lease, which expires in February 2026. In October 2020, the Company agreed to terminate this sublease, in exchange for a termination payment, due to financial difficulties encountered by the subtenant as a result of COVID-19.

Effective June 1, 2021, the Company agreed to sublease office space in Florida, comprised of one of the two contiguous suites, under a non-cancelable operating lease, which expires in February 2026.

Iowa

The Company leases office and laboratory facilities in Iowa under a non-cancelable operating lease. The Company’s lease for its Iowa facilities expires in September 2022 and includes a renewal option that could extend the lease for successive one-year terms upon expiration.

Virginia

The Company leases office and laboratory facilities in Virginia under a non-cancelable operating lease. The Company’s lease for its Virginia facilities expires in August 2022.

North Carolina

The Company leases office space in North Carolina under a non-cancelable operating lease. The Company's lease for its North Carolina facilities expires in March 2022.

Finance Lease

The Company leases various laboratory equipment, furniture and office equipment and leasehold improvements that are accounted for as finance leases and that require ongoing payments, including interest expense. The finance leases are financed through various financial institutions and are collateralized by the underlying assets. As of December 31, 2021, and 2020, the interest rates for assets under remaining finance leases range from 7.19% to 14.34%.

The components of lease expense were as follows (in thousands):

	Year Ended December 31,	
Lease Cost	**2021**	**2020**
Finance lease cost:		
Amortization of right-of-use assets	$ 129	$ 124
Interest on lease liabilities	9	23
Total finance lease cost	138	147
Operating lease cost	365	363
Short-term lease cost	199	210
Variable lease cost	47	55
Less: sublease income	(91)	(106)
Total lease costs	$ 658	$ 669

Rent expense for non-cancelable operating leases was $0.6 million and $0.6 million for the years ended December 31, 2021, and 2020, respectively.

Supplemental cash flow information related to leases was as follows (in thousands):

	Year Ended December 31,	
	2021	**2020**
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from finance leases	$ 9	$ 23
Financing cash flows from finance leases	173	227
Operating cash flows from operating leases	460	447
Operating cash flows from short-term leases	199	210
Operating cash flows from variable lease costs	47	55
Right-of-use assets obtained in exchange for lease liabilities:		
Finance leases	$ -	$ 17
Operating leases	-	20

Supplemental balance sheet information related to leases was as follows (in thousands, except weighted average remaining lease term and weighted average discount rate):

	December 31,	
	2021	2020
Finance Leases		
Property and equipment, at cost	$ 1,031	$ 1,031
less: accumulated depreciation and amortization	(651)	(523)
Property and equipment, net	$ 380	$ 508
Other current liabilities	$ 15	$ 172
Other long-term liabilities	6	22
Total finance lease liabilities	$ 21	$ 194
Operating Leases		
Operating lease right-of-use assets	$ 1,141	$ 1,350
Total operating lease right-of-use assets	$ 1,141	$ 1,350
Current portion of operating lease liabilities	$ 356	$ 327
Operating lease liabilities, less current portion	1,232	1,587
Total operating lease liabilities	$ 1,588	$ 1,914
Weighted Average Remaining Lease Term		
Finance leases	1 year	1 year
Operating leases	4 years	5 years
Weighted Average Discount Rate		
Finance leases	12.0%	8.5%
Operating leases	7.5%	7.5%

Maturities on lease liabilities were as follows (in thousands):

Year Ending December 31,	Finance Leases	Operating Leases
2022	$ 16	$ 463
2023	7	472
2024	-	484
2025	-	390
2026	-	30
Thereafter	-	-
Total lease payments	23	1,839
Less: future interest expense	(2)	(251)
Lease liabilities	$ 21	$ 1,588

I. Supply Arrangement

As of December 31, 2021, and 2020, the Company has one manufacturing arrangement that involves potential future expenditures related to research and development.

In November 2009, the Company entered into a supply agreement (the "Supply Agreement") with Johnson Matthey Inc. ("JMI") whereby JMI has agreed to supply the Company with all of the benzhydrocodone necessary for clinical trials and commercial sale for a price equal to JMI's manufacturing cost and to provide process optimization and development services for benzhydrocodone. The Company's FDA-approved drug, APADAZ, contains benzhydrocodone. The expense under this agreement for the year ended December 31, 2021, was negligible. The expense under this agreement for the year ended December 31, 2020, was $3.2 million. The Company must purchase all of its U.S. benzhydrocodone needs from JMI and JMI cannot supply benzhydrocodone to other companies. The term of the Supply Agreement extends as long as the Company holds a valid and enforceable patent for benzhydrocodone or until the tenth anniversary of a commercial launch of a FDA-approved drug incorporating benzhydrocodone, whichever date is later. Upon the expiration of such term, the agreement will automatically renew for a period of two years unless either party provides 12 months prior notice of its intent not to renew. Under the agreement, JMI will receive a tiered-based royalty share on the net sales on the commercial sale of a FDA-approved drug incorporating benzhydrocodone. No reliable estimate of the future payments can be made at this time.

J. Preferred Stock and Warrants

Authorized, Issued, and Outstanding Preferred Stock

As of December 31, 2021, the Company had 10,000,000 shares of authorized, unallocated and unissued preferred stock.

As of December 31, 2020, the Company had 10,000,000 shares of authorized preferred stock. The following shares of preferred stock were designated, issued and outstanding as of December 31, 2020:

	Shares Authorized	Shares Issued	Shares Outstanding
Series A convertible preferred stock, $0.0001 par value	9,578	9,577	—
Series B-1 convertible preferred stock, $0.0001 par value	1,576	1,576	—
Series B-2 convertible preferred stock, $0.0001 par value	27,000	27,000	—

In June 2021, the Company filed with the Secretary of State of the State of Delaware: (i) a Certificate of Elimination of Series A Convertible Preferred Stock, eliminating from the Company's Certificate of Incorporation the 9,578 shares designated as Series A Convertible Preferred Stock; (ii) a Certificate of Elimination of Series B-1 Convertible Preferred Stock, eliminating from the Company's Certificate of Incorporation the 1,576 shares designated as Series B-1 Convertible Preferred Stock; and (iii) a Certificate of Elimination of Series B-2 Convertible Preferred Stock, eliminating from the Company's Certificate of Incorporation the 31,480 shares designated as Series B-2 Convertible Preferred Stock. As of December 31, 2021, no shares of preferred stock were designated, issued or outstanding.

Series B-2 Preferred Stock

Pursuant to the December 2020 Exchange Agreement, on January 12, 2021, the Company issued to the Facility Note Holders an aggregate of 31,476.98412 shares of its Series B-2 Preferred Stock and warrants exercisable for an aggregate of 3,632,019 shares of the Company's common stock (the "Exchange Warrants").

The Series B-2 Preferred Stock was convertible into an aggregate of 4,842,690 shares of the Company's common stock upon issuance at a conversion price equal to $6.4999. No fractional shares of common stock will be issued in connection with the conversion of the Series B-2 Preferred Stock. Instead, for any such fractional share that would have otherwise been issued upon conversion of a share of Series B-2 Preferred Stock, the Company will round such fraction up to the next whole share.

Amended and Restated Certificate of Designation of Preferences, Rights and Limitations of the Series B-2 Convertible Preferred Stock

On January 11, 2021, as a condition to the closing of the transactions contemplated by the December 2020 Exchange Agreement, the Company filed an Amended and Restated Certificate of Designation of Preferences, Rights and Limitations of Series B-2 Convertible Preferred Stock (the "Series B-2 Certificate of Designation") with the Secretary of State of the State of Delaware, setting forth the preferences, rights and limitations of the Series B-2 Preferred Stock.

Immediately following the closing of the Public Offering, pursuant to the terms of the December 2020 Exchange Agreement, the Company:

- exchanged approximately $31.5 million (the "Exchange") of the outstanding principal and accrued interest on the Facility Notes for (i) the Series B-2 Preferred Stock and (ii) the Exchange Warrants; and
- made a payment of approximately $30.3 million (the "Debt Payment") in partial repayment of the remaining outstanding principal and accrued interest on the Facility Notes.

Upon the closing of the Exchange and related Debt Payment, the amendments to the Facility Agreement, the Notes and the Investors' Rights Agreement, dated as of February 19, 2015, by and among the Company, Deerfield and the other parties signatory thereto, contemplated by the December 2020 Exchange Agreement that were conditional upon, among other things, the closing of the Public Offering, the filing of the Series B-2 Certificate of Designation and/or the approval for listing of the Company's common stock, including the shares issuable upon conversion of the Series B-2 Preferred Stock and exercise of the Exchange Warrants, on the Nasdaq Capital Market, became effective on January 12, 2021.

In March 2021, all shares of Series B-2 Preferred Stock converted into 4,842,699 shares of common stock.

K. Common Stock and Warrants

Authorized, Issued, and Outstanding Common Shares

As of December 31, 2021, and 2020, the Company had authorized shares of common stock of 250,000,000 shares. Of the authorized shares, 35,325,801 and 4,537,321 shares of common stock were issued as of December 31, 2021, and 2020, respectively, and 35,005,640 and 4,537,321 shares of common stock were outstanding as of December 31, 2021, and 2020, respectively.

As of December 31, 2021, and 2020, the Company had reserved authorized shares of common stock for future issuance as follows:

	December 31,	
	2021	**2020**
Conversion of Deerfield Convertible Note	-	81,101
Conversion of January 2020 Note	-	34,615
Conversion of December 2019 Notes	-	625,747
Outstanding awards under equity incentive plans	1,273,879	355,785
Outstanding common stock warrants	4,252,600	151,442
Possible future issuances under equity incentive plans	4,209,935	-
Possible future issuances under employee stock purchase plan	1,500,000	47,825
Total common shares reserved for future issuance	11,236,414	1,296,515

Common Stock Activity

The following table summarizes common stock activity for the years ended December 31, 2021, and 2020:

	Shares of Common Stock
Balance as of January 1, 2020	2,271,882
Common stock issued under equity line of credit	579,260
Restricted stock vested during the period	10,247
Common stock issued as compensation to third-parties	23,216
Common stock issued as a result of Deerfield Optional Conversion Feature conversion	1,652,437
Common stock issued as a result of stock option exercise	279
Balance as of December 31, 2020	4,537,321
Common stock issued as a result of the Public Offering	7,139,498
Common stock issued as a result of Series B-2 Preferred Stock conversions	4,842,699
Common stock issued as a result of warrant exercises	18,772,510
Common stock issued as compensation to third-parties	35,129
Adjustment for cash paid in lieu of DTC fractional shares	(1,356)
Common stock repurchased as a result of the Stock Repurchase Program	(320,161)
Balance as of December 31, 2021	35,005,640

Warrants

On June 2, 2014, pursuant to the terms of the Deerfield Facility Agreement, the Company issued the Deerfield Warrant to purchase 14,423,076 shares of Series D Preferred (Note C). The Company recorded the fair value of the Deerfield Warrant as a debt discount and a warrant liability. The Deerfield Warrant, if unexercised, expires on the earlier of June 2, 2024, or upon a liquidation event. Upon completion of the Company's initial public offering (the "IPO"), the Deerfield Warrant automatically converted into a warrant to purchase 1,923,077 shares of the Company's common stock at an exercise price of $5.85 per share. After giving effect to the Reverse Stock Split effected in December 2020, the exercise price of the Deerfield Warrant became $93.60 and the shares of the Company's common stock issuable upon exercise of the Deerfield Warrant became 120,192 shares of common stock. As a result of the January 2021 Inducement Transaction (discussed below) the anti-dilution provisions within the Deerfield Warrant were triggered and the exercise price was reduced from $93.60 per share to $46.25 per share. In addition, as a result of the June 2021 Inducement Transaction (discussed below) the anti-dilution provision within the Deerfield Warrant were triggered and the exercise price was reduced from $46.25 per share to $38.34 per share. The Company amortized the debt discount over the term of the Deerfield Convertible Note and the expense was recorded as interest expense related to amortization of debt issuance costs and discount in the statements of operations. The Deerfield Convertible Note was extinguished in February 2021 and the remaining debt discount was written off and recognized as a loss on extinguishment of debt.

The Company determined that the Deerfield Warrant should be recorded as a liability and stated at fair value at each reporting period upon inception. As stated above, upon completion of the IPO, the Deerfield Warrant automatically converted into warrants to purchase the Company's common stock. The Deerfield Warrant remains classified as a liability and is recorded at fair value at each reporting period since it can be settled in cash. Changes to the fair value of the warrant liability are recorded through the statements of operations as a fair value adjustment (Note M).

In connection with the APADAZ License Agreement, in October 2018, the Company issued to KVK a warrant to purchase up to 500,000 shares of common stock of the Company at an exercise price of $2.30 per share, which reflected the closing price of the Company's common stock on the Nasdaq Stock Market on the execution date of the APADAZ License Agreement (the "KVK Warrant"). The KVK Warrant is initially not exercisable for any shares of common stock. Upon the achievement of each of four specified milestones under the KVK Warrant, the KVK Warrant will become exercisable for an additional 125,000 shares, up to an aggregate of 500,000 shares of the Company's common stock. The exercise price and the number and type of shares underlying the KVK Warrant are subject to adjustment in the event of specified events, including a reclassification of the Company's common stock, a subdivision or combination of the Company's common stock, or in the event of specified dividend payments. The KVK Warrant is exercisable until October 24, 2023. Upon exercise, the aggregate exercise price may be paid, at KVK's election, in cash or on a net issuance basis, based upon the fair market value of the Company's common stock at the time of exercise. After giving effect to the Reverse Stock Split effected in December 2020, the exercise price of the KVK Warrant became $36.80 and the shares of common stock issuable upon exercise of the KVK Warrant became 31,250 shares of common stock.

The Company determined that, since KVK qualifies as a customer under ASC 606, the KVK Warrant should be recorded as a contract asset and recognized as contra-revenue as the Company recognizes revenue from the APADAZ License Agreement. In addition, the Company determined that the KVK Warrant qualifies as a derivative under ASC 815 and should be recorded as a liability and stated at fair value each reporting period. The Company calculates the fair value of the KVK Warrant using a probability-weighted Black-Scholes option pricing model. Changes in fair value resulting from changes in the inputs to the Black Scholes model are accounted for as changes in the fair value of the derivative under ASC 815 and are recorded as fair value adjustment related to derivative and warrant liability in the statements of operations. Changes in the number of shares that are expected to be issued are treated as changes in variable consideration under ASC 606 and are recorded as a change in contract asset on the balance sheets. As of December 31, 2021, and 2020, a contract asset of $0.4 million is recorded in other long-term assets on the balance sheets related to the KVK Warrant.

Pre-Funded Warrants

On January 12, 2021, pursuant to the terms of the Underwriting Agreement, the Company issued pre-funded warrants to purchase 926,844 shares of the Company's common stock to specified investors in the Public Offering. Each pre-funded warrant had an initial exercise price per share equal to $0.0001. The pre-funded warrants were immediately exercisable. The pre-funded warrants were exercisable, at the option of each holder, in whole or in part, by delivering to the Company a duly executed exercise notice accompanied by payment in full for the number of shares of common stock purchased upon such exercise. In lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the aggregate exercise price, the holder was able to elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the pre-funded warrants. In January 2021, all pre-funded warrants were exercised for 926,841 shares of common stock and gross proceeds of approximately $72.

Warrants to Purchase Common Stock

On January 12, 2021, pursuant to the terms of the Underwriting Agreement and December 2020 Exchange Agreement, the Company issued warrants to purchase 12,078,361 shares of the Company's common stock (collectively, the "Offering Warrants") in the Public Offering and in connection with the transactions contemplated under the December 2020 Exchange Agreement. The Offering Warrants were immediately exercisable and expire on the fifth anniversary of their issuance date, at an exercise price per share of common stock equal to $6.50 per share. The Offering Warrants are exercisable, at the option of each holder, in whole or in part, by delivering to the Company a duly executed exercise notice, provided that payment in full for the number of shares of the Company's common stock purchased upon such exercise is delivered to the Company in accordance with the terms of the Offering Warrants. In lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the Offering Warrants. A holder (together with its affiliates) may not exercise any portion of the Offering Warrant to the extent that the holder and its affiliates and any other person or entities with which such holder would constitute a Section 13(d) "group" would own more than 4.99% of the Company's outstanding common stock immediately after exercise. Except as otherwise provided in the Offering Warrants or by virtue of such holder's ownership of shares of the Company's common stock, the holders of the Offering Warrants do not have the rights or privileges of holders of common stock with respect to the shares of common stock underlying the Offering Warrants, including any voting rights, until they exercise their Offering Warrants. The Offering Warrants provide that holders have the right to participate in distributions or dividends paid on the Company's common stock. In the event of a fundamental transaction, as described in the Offering Warrants and generally including any reorganization, recapitalization or reclassification of the Company's common stock, the sale, transfer or other disposition of all or substantially all of the Company's properties or assets, the Company's consolidation or merger with or into another person, the acquisition of more than 50% of the Company's outstanding common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by the Company's outstanding common stock, the holders of the Offering Warrants will be entitled to receive upon exercise of the Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Offering Warrants immediately prior to such fundamental transaction. In addition, in the event of a fundamental transaction which is approved by the Company's board of directors, the holders of the warrants have the right to require the Company or a successor entity to redeem the Offering Warrants for cash in the amount of the Black Scholes value of the unexercised portion of the Offering Warrants on the date of the consummation of the fundamental transaction. In the event of a fundamental transaction which is not approved by the Company's board of directors, the holders of the Offering Warrants have the right to require the Company or a successor entity to redeem the Offering Warrants in the amount of the Black Scholes value of the unexercised portion of the Offering Warrants on the date of the consummation of the fundamental transaction payable in the form of consideration paid to the holders of common stock in such fundamental transaction. The Offering Warrants meet the equity classification requirements and thus are recorded in additional paid-in capital on the unaudited condensed balance sheets. As of December 31, 2021, 3,461,858 Offering Warrants have been exercised for 3,030,881 shares of common stock and gross proceeds of approximately $16.9 million. These amounts are exclusive of the Offering Warrants exercised as part of the January 2021 Inducement Transaction discussed below.

Underwriter Warrant

On January 12, 2021, pursuant to the terms of the Underwriting Agreement, the Company issued to the Underwriter a warrant to purchase 806,932 shares of the Company's common stock (the "Underwriter Warrant"). The Underwriter Warrant is subject to substantially the same terms and conditions as the Warrants, provided that the exercise price for the Underwriter Warrant is $8.125 per share. If the Underwriter exercises any additional portion of its over-allotment option, then the Company shall issue the Underwriter an additional Underwriter Warrant exercisable for a number of shares of common stock equal to 5.0% of the number of shares of common stock issued in such over-allotment exercise (including the shares of common stock issuable upon the exercise of any Warrants issued in connection therewith). In connection with the closing of the Underwriter's partial exercise of its over-allotment option, on February 3, 2021, the Underwriter was issued an additional warrant to purchase 18,702 shares of common stock. As of December 31, 2021, 400,000 Underwriter Warrants have been exercised for 400,000 shares of common stock and gross proceeds of approximately $3.3 million.

January 2021 Warrant Exercise Inducement Letters and Issuance of Warrants

On January 26, 2021, the Company entered into warrant exercise inducement offer letters ("January 2021 Inducement Transaction") with certain holders of warrants issued in the Public Offering discussed above (the "Existing Warrants") (collectively, the "Exercising Holders") pursuant to which such holders agreed to exercise for cash their Existing Warrants to purchase 6,620,358 shares of the Company's common stock in exchange for the Company's agreement to issue new warrants (the "January 2021 Inducement Warrants") on substantially the same terms as the Existing Warrants, except as set forth in the following sentence, to purchase up to 7,944,430 shares of the Company's common stock, which is equal to 120% of the number of shares of the Company's common stock issued upon exercise of the Existing Warrants. The purchase price of the January 2021 Inducement Warrants was $0.125 per share underlying each January 2021 Inducement Warrant, and the January 2021 Inducement Warrants have an exercise price of $6.36 per share. The Company received aggregate gross proceeds of approximately $44.0 million from the exercise of the Existing Warrants by the Exercising Holders and the sale of the January 2021 Inducement Warrants. The Company engaged Roth as its exclusive placement agent in connection with these transactions and paid Roth a fee equal to 6% of gross proceeds from the exercise of the Existing Warrants by the Exercising Holders and the sale of the January 2021 Inducement Warrants. As a result of this transaction the anti-dilution provisions contained with the Deerfield Warrant were triggered and the exercise price of the Deerfield Warrant was reduced from $93.60 per share to $46.25 per share.

The January 2021 Inducement Warrants were immediately exercisable and expire on the fifth anniversary of their issuance date, at an exercise price per share of common stock equal to $6.36 per share. The January 2021 Inducement Warrants are exercisable, at the option of each holder, in whole or in part, by delivering to the Company a duly executed exercise notice, provided that payment in full for the number of shares of the Company's common stock purchased upon such exercise is delivered to the Company in accordance with the terms of the January 2021 Inducement Warrants. In lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the warrants. A holder (together with its affiliates) may not exercise any portion of the January 2021 Inducement Warrant to the extent that the holder and its affiliates and any other person or entities with which such holder would constitute a Section 13(d) "group" would own more than 4.99% (or, upon election by a holder prior to the issuance of its January 2021 Inducement Warrants, 9.99%) of the Company's outstanding common stock immediately after exercise. Except as otherwise provided in the January 2021 Inducement Warrants or by virtue of such holder's ownership of shares of the Company's common stock, the holders of the January 2021 Inducement Warrants do not have the rights or privileges of holders of common stock with respect to the shares of common stock underlying the January 2021 Inducement Warrants, including any voting rights, until they exercise their January 2021 Inducement Warrants. The January 2021 Inducement Warrants provide that holders have the right to participate in distributions or dividends paid on the Company's common stock. In the event of a fundamental transaction, as described in the January 2021 Inducement Warrants and generally including any reorganization, recapitalization or reclassification of the Company's common stock, the sale, transfer or other disposition of all or substantially all of the Company's properties or assets, the Company's consolidation or merger with or into another person, the acquisition of more than 50% of the Company's outstanding common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by the Company's outstanding common stock, the holders of the January 2021 Inducement Warrants will be entitled to receive upon exercise of the January 2021 Inducement Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the January 2021 Inducement Warrants immediately prior to such fundamental transaction. In addition, in the event of a fundamental transaction which is approved by the Company's board of directors, the holders of the January 2021 Inducement Warrants have the right to require the Company or a successor entity to redeem the January 2021 Inducement Warrants for cash in the amount of the Black Scholes value of the unexercised portion of the January 2021 Inducement Warrants on the date of the consummation of the fundamental transaction. In the event of a fundamental transaction which is not approved by the Company's board of directors, the holders of the January 2021 Inducement Warrants have the right to require the Company or a successor entity to redeem the January 2021 Inducement Warrants in the amount of the Black Scholes value of the unexercised portion of the January 2021 Inducement Warrants on the date of the consummation of the fundamental transaction payable in the form of consideration paid to the holders of common stock in such fundamental transaction. As of December 31, 2021, 1,676,921 January 2021 Inducement Warrants have been exercised for 1,676,921 shares of common stock and gross proceeds of approximately $10.7 million. These amounts are exclusive of the January 2021 Inducement Warrants exercised as part of the June 2021 Inducement Transaction discussed below.

In accordance with the January 2021 Inducement Transaction we recognized a deemed dividend of $37.4 million which is the difference between the grant date fair value of the January 2021 Inducement Warrants and the purchase price of the January 2021 Inducement Warrants. This deemed dividend is added to net loss to arrive at net loss attributable to common stockholders on the statements of operations.

June 2021 Warrant Exercise Inducement Letters and Issuance of Warrants

On June 18, 2021, the Company entered into warrant exercise inducement offer letters ("June 2021 Inducement Transaction") with certain holders of warrants issued in the January 2021 Inducement Transaction discussed above (the "January 2021 Inducement Warrants") (collectively, the "June 2021 Exercising Holders") pursuant to which such holders agreed to exercise for cash their January 2021 Inducement Warrants to purchase 6,117,509 shares of the Company's common stock in exchange for the Company's agreement to issue new warrants (the "June 2021 Inducement Warrants") on substantially the same terms as the January 2021 Inducement Warrants, except as set forth in the following sentence, to purchase up to 1,529,379 shares of the Company's common stock, which is equal to 25% of the number of shares of the Company's common stock issued upon exercise of the January 2021 Inducement Warrants. The purchase price of the June 2021 Inducement Warrants was $0.125 per share underlying each June 2021 Inducement Warrant, and the June 2021 Inducement Warrants have an exercise price of $16.50 per share. The Company received aggregate gross proceeds of approximately $39.1 million from the exercise of the January 2021 Inducement Warrants by the June 2021 Exercising Holders and the sale of the June 2021 Inducement Warrants. The Company engaged Roth as its exclusive placement agent in connection with these transactions and paid Roth a fee equal to 6% of gross proceeds from the exercise of the January 2021 Inducement Warrants by the June 2021 Exercising Holders and the sale of the June 2021 Inducement Warrants. As a result of this transaction the anti-dilution provisions contained with the Deerfield Warrant were triggered and the exercise price of the Deerfield Warrant was reduced from $46.25 per share to $38.34 per share.

The June 2021 Inducement Warrants were immediately exercisable and expire on December 31, 2026, at an exercise price per share of common stock equal to $16.50 per share. The June 2021 Inducement Warrants are exercisable, at the option of each holder, in whole or in part, by delivering to the Company a duly executed exercise notice, provided that payment in full for the number of shares of the Company's common stock purchased upon such exercise is delivered to the Company in accordance with the terms of the June 2021 Inducement Warrants. In lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the warrants. A holder (together with its affiliates) may not exercise any portion of the June 2021 Inducement Warrant to the extent that the holder and its affiliates and any other person or entities with which such holder would constitute a Section 13(d) "group" would own more than 4.99% (or, upon election by a holder prior to the issuance of its June 2021 Inducement Warrants, 9.99%) of the Company's outstanding common stock immediately after exercise. Except as otherwise provided in the June 2021 Inducement Warrants or by virtue of such holder's ownership of shares of the Company's common stock, the holders of the June 2021 Inducement Warrants do not have the rights or privileges of holders of common stock with respect to the shares of common stock underlying the June 2021 Inducement Warrants, including any voting rights, until they exercise their June 2021 Inducement Warrants. The June 2021 Inducement Warrants provide that holders have the right to participate in distributions or dividends paid on the Company's common stock. In the event of a fundamental transaction, as described in the June 2021 Inducement Warrants and generally including any reorganization, recapitalization or reclassification of the Company's common stock, the sale, transfer or other disposition of all or substantially all of the Company's properties or assets, the Company's consolidation or merger with or into another person, the acquisition of more than 50% of the Company's outstanding common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by the Company's outstanding common stock, the holders of the June 2021 Inducement Warrants will be entitled to receive upon exercise of the June 2021 Inducement Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the June 2021 Inducement Warrants immediately prior to such fundamental transaction. In addition, in the event of a fundamental transaction which is approved by the Company's board of directors, the holders of the June 2021 Inducement Warrants have the right to require the Company or a successor entity to redeem the June 2021 Inducement Warrants for cash in the amount of the Black Scholes value of the unexercised portion of the June 2021 Inducement Warrants on the date of the consummation of the fundamental transaction. In the event of a fundamental transaction which is not approved by the Company's board of directors, the holders of the June 2021 Inducement Warrants have the right to require the Company or a successor entity to redeem the June 2021 Inducement Warrants in the amount of the Black Scholes value of the unexercised portion of the June 2021 Inducement Warrants on the date of the consummation of the fundamental transaction payable in the form of consideration paid to the holders of common stock in such fundamental transaction. As of December 31, 2021, no June 2021 Inducement Warrants have been exercised.

In accordance with the June 2021 Inducement Transaction we recognized a deemed dividend of $16.9 million which is the difference between the grant date fair value of the June 2021 Inducement Warrants and the purchase price of the June 2021 Inducement Warrants. This deemed dividend is added to net loss to arrive at net loss attributable to common stockholders on the statements of operations.

L. Stock-Based Compensation

The Company maintains a stock-based compensation plan (the “Incentive Stock Plan”) that governs stock awards made to employees and directors prior to completion of the IPO.

In November 2014, the Board of Directors of the Company ("the Board"), and in April 2015, the Company’s stockholders, approved the Company’s 2014 Equity Incentive Plan (the “2014 Plan”), which became effective in April 2015. The 2014 Plan provides for the grant of stock options, other forms of equity compensation, and performance cash awards. In June 2021, the Company's stockholders approved an Amended and Restated 2014 Equity Incentive Plan (the "A&R 2014 Plan"), following its adoption by the Board in April 2021, which among other things added 4,900,000 shares to the maximum number of shares of common stock to be issued under the plan and extended the annual automatic increases (discussed further below) until January 1, 2031 and eliminated individual grant limits that applied under the 2014 Plan to awards that were intended to comply with the exemption for "performance-based compensation" under Code Section 162(m). The maximum number of shares of common stock that may be issued under the A&R 2014 Plan is 5,489,660 as of December 31, 2021. The number of shares of common stock reserved for issuance under the A&R 2014 Plan will automatically increase on January 1 of each year, beginning on January 1, 2016, and ending on and including January 1, 2031, by 4% of the total number of shares of the Company’s capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares determined by the Board. Pursuant to the terms of the 2014 Plan, on January 1, 2022, the common stock reserved for issuance under the 2014 Plan automatically increased by 1,400,225 shares.

During 2020, the Company granted to certain consultants fully vested restricted stock awards (“RSAs”) under the 2014 Plan. The RSAs were granted as compensation in accordance with each consultant's consulting agreement for services performed during 2020. For the year ended December 31, 2020, RSAs were granted for a total of 10,247 shares of common stock. No RSAs were granted during the year ended December 31, 2021.

During the year ended December 31, 2020, stock options to acquire 279 shares of common stock were exercised for approximately $2,000 with an intrinsic value of approximately $1,000. During the year ended December 31, 2021 no stock options were exercised.

Stock-based compensation expense recorded under the Incentive Stock Plan, 2014 Plan and A&R 2014 Plan is included in the following line items in the accompanying statements of operations (in thousands):

	Year ended December 31,	
	2021	2020
Research and development	$ 914	$ 937
General and administrative	1,522	1,134
Severance expense	-	420
Total stock-based compensation expense	$ 2,436	$ 2,491

Stock Option Awards

The Company estimates the fair value of stock options using the Black-Scholes option-pricing model, which requires the use of subjective assumptions, including the expected term of the option, the expected stock price volatility, expected dividend yield and the risk-free interest rate for the expected term of the option. The expected term represents the period of time the stock options are expected to be outstanding. Due to the lack of sufficient historical exercise data to provide a reasonable basis upon which to otherwise estimate the expected term of the stock options, the Company uses the simplified method to estimate the expected term for its “plain vanilla” stock options. Under the simplified method, the expected term of an option is presumed to be the mid-point between the vesting date and the end of the contractual term. Some options, for example those that have exercise prices in excess of the fair value of the underlying stock, are not considered “plain vanilla” stock options. For these options, the Company uses an expected term equal to the contractual term of the option. Expected volatility is based on the Company’s historical volatility over the estimated expected term of the stock options. The Company assumes no dividend yield because dividends are not expected to be paid in the near future, which is consistent with the Company’s history of not paying dividends.

The Company recognizes compensation expense related to stock-based payment transactions upon satisfaction of the requisite service or vesting requirements. Forfeitures are estimated at the time of grant and revised based on actual forfeitures, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

Using the Black-Scholes option-pricing model, the weighted-average fair value of awards granted during the years ended December 31, 2021, and 2020, fair value was $7.53 and $5.00 per share, respectively. The assumptions used to estimate fair value are as follows:

	Year Ended December 31,	
	2021	**2020**
Risk-free interest rate	0.92% - 1.55%	0.38% - 1.65%
Expected term (in years)	5.50 - 10.00	5.50 - 10.00
Expected volatility	96.91% - 102.57%	89.49% - 93.07%
Expected dividend yield	0	0

The activity under the Incentive Stock Plan, 2014 Plan and A&R 2014 Plan for the year ended December 31, 2021, is summarized as follows:

	Number of Options	Weighted Average Exercise Price	Weighted Avg Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding balance at January 1, 2021	355,785	$ 74.60	7.34	$ 543,021
Granted	919,383	$ 9.48		
Exercised or released	-	$ -		
Canceled or forfeited	-	$ -		
Expired	1,289	$ 93.60		
Outstanding balance at December 31, 2021	1,273,879	$ 27.58	8.73	$ 254,207
Exercisable at December 31, 2021	307,215	$ 78.39	6.27	$ 247,482
Vested and expected to vest at December 31, 2021	1,163,252	$ 29.32	8.64	$ 253,798

Information regarding currently outstanding and exercisable options as of December 31, 2021, is as follows:

	Options Outstanding		Options Exercisable	
Exercise Price	Number of Shares	Weighted Avg Remaining Contractual Term	Number of Shares	Weighted Avg Remaining Contractual Term
$2.848 to $10.00	976,833	9.47	115,694	8.06
$10.01 to $30.00	69,375	9.17	9,375	7.31
$30.01 to $50.00	72,404	7.11	36,214	7.11
$50.01 to $70.00	44,365	5.08	44,365	5.08
$70.01 to $327.20	110,902	4.50	101,567	4.35
	1,273,879	8.73	**307,215**	6.27

The total fair value of stock options vested during the years ended December 31, 2021, and 2020, was $2.0 million and $3.7 million, respectively.

Unvested stock options as of December 31, 2021, and 2020, were as follows:

	Number of Unvested Shares December 31,	
Exercise Price	2021	2020
$2.848 to $10.00	861,139	82,247
$10.01 to $30.00	60,000	-
$30.01 to $50.00	36,190	54,300
$50.01 to $70.00	-	9,429
$70.01 to $327.20	9,335	18,675
Total number of unvested stock options	**966,664**	**164,651**

As of December 31, 2021, there was $5.8 million of total unrecognized compensation cost related to unvested share-based compensation arrangements granted under the 2014 Plan and A&R 2014 Plan. That compensation cost is expected to be recognized over a weighted-average period of 3.17 years.

There was $0.4 million and $0.3 million of stock-based compensation expense related to performance-based awards recognized during the years ended December 31, 2021, and 2020, respectively.

M. Fair Value of Financial Instruments

The carrying amounts of certain financial instruments, including cash and cash equivalents, restricted cash, long-term investments and accounts payable and accrued expenses, approximate their respective fair values due to the short-term nature of such instruments.

The fair values of the Deerfield Convertible Note, December 2019 Notes and the January 2020 Note were $7.3 million, $56.2 million and $3.1 million, respectively, as of December 31, 2020. The Deerfield Convertible Note, December 2019 Notes and the January 2020 Note were all extinguished in the first quarter of 2021 and therefore had no value as of December 31, 2021. The Deerfield Convertible Note, December 2019 Notes and the January 2020 Note fell within Level 3 of the fair value hierarchy as their value was based on the credit worthiness of the Company, which was an unobservable input. The Company used a Tsiveriotis-Fernandes model to value the Deerfield Convertible Note, December 2019 Notes and the January 2020 Note as of December 31, 2020.

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The Company evaluates its financial assets and liabilities subject to fair value measurements on a recurring basis to determine the appropriate level in which to classify them for each reporting period. This determination requires significant judgments to be made. The following table summarizes the conclusions reached regarding fair value measurements as of December 31, 2021, and 2020 (in thousands):

	Balance at December 31, 2021	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Deerfield Warrant liability	$ 288	$ -	$ -	$ 288
Embedded Warrant Put Option	18	-	-	18
KVK Warrant liability	24	-	24	-
Total liabilities	$ 330	$ -	$ 24	$ 306
Trading securities:				
U.S. government-sponsored agency securities	$ 4,997	$ -	$ 4,997	$ -
Certificates of deposit	490	490	-	-
U.S. Treasury securities	9,935	9,935	-	-
Total assets	$ 15,422	$ 10,425	$ 4,997	$ -

	Balance at December 31, 2020	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Deerfield Warrant liability	$ 230	$ -	$ -	$ 230
Embedded Warrant Put Option	25	-	-	25
Deerfield Note Conversion Feature	-	-	-	-
KVK Warrant liability	49	-	49	-
Total liabilities	$ 304	$ -	$ 49	$ 255

The Company's Deerfield Warrant liability, embedded Warrant Put Option and trading securities are, and the embedded Deerfield Note Put Option was, measured at fair value on a recurring basis. As of December 31, 2021, the Deerfield Warrant liability and embedded Warrant Put Option, and as of December 31, 2020, the Deerfield Warrant liability, embedded Warrant Put Option and the embedded Deerfield Note Conversion Feature were, reported on the balance sheets in derivative and warrant liability. As of December 31, 2021, the trading securities are reported on the balance sheets in long-term investments. The Company used a Monte Carlo simulation to value the Deerfield Warrant liability, embedded Warrant Put Option and the embedded Deerfield Note Conversion Feature for all periods presented. Significant unobservable inputs used in measuring the fair value of these financial instruments included the Company's estimated enterprise value, an estimate of the timing of a liquidity or fundamental change event and a present value discount rate. Changes in the fair value of the Deerfield Warrant liability and embedded Warrant Put Option are, and changes in the fair value of the embedded Deerfield Note Put Option were (through December 31, 2020), reflected in the statements of operations for the years ended December 31, 2021, and 2020, as a fair value adjustment related to derivative and warrant liability.

The derivative liability for the Deerfield Warrant was $288,000 and $230,000 at December 31, 2021 and 2020, respectively. The derivative liability for the embedded Warrant Put Option was $18,000 and $25,000 at December 31, 2021 and 2020, respectively. The derivative liability for the Deerfield Note Conversion Feature had no value at December 31, 2020. A 10% increase in the enterprise value would result in an increase of $50,000 in the estimated fair value of the Deerfield Warrant liability and an increase of $3,000 in the estimated fair value of the embedded Warrant Put Option liability. In addition, the Company assumed a weighted-average probability of a liquidity event occurring of approximately 23% with an estimated probability-weighted value of approximately $55.0 million and a weighted-average probability of a fundamental change event occurring of approximately 34% with an estimated probability-weighted value of approximately $680 million, respectively, with estimated timing in each scenario of the first quarter of 2023.

The Company's KVK Warrant liability is measured at fair value on a recurring basis. As of December 31, 2021, and 2020, the KVK Warrant liability is reported on the balance sheets in derivative and warrant liability. The Company estimates the fair value of the KVK Warrant using a probability-weighted Black-Scholes option-pricing model, which requires the use of subjective assumptions, including the expected term of the warrant, the expected stock price volatility, expected dividend yield and the risk-free interest rate for the expected term of the warrant. The expected term represents the period of time the warrant is expected to be outstanding. For the KVK Warrant, the Company used an expected term equal to the contractual term of the warrant. Expected volatility is based on the Company's historical volatility since the IPO. The Company assumes no dividend yield because dividends are not expected to be paid in the near future, which is consistent with the Company's history of not paying dividends. Changes in the fair value of the KVK Warrant liability are reflected in the statements of operations for the years ended December 31, 2021, and 2020, as a fair value adjustment related to derivative and warrant liability.

A reconciliation of the beginning and ending balances for the derivative and warrant liability measured at fair value on a recurring basis using significant unobservable inputs (Level 3) is as follows (in thousands):

	2021	2020
Balance as of beginning of period	$ 255	$ 96
Adjustment to fair value	51	159
Balance as of end of period	$ 306	$ 255

N. Income Taxes

The Company's financial statements include a total state tax expense of $34,000 and state tax benefit of $34,000 related to research and development credits on a loss before income taxes of approximately $8.5 million and $12.8 million for the years ended December 31, 2021, and 2020, respectively. A reconciliation of the difference between the (expense)/benefit for income taxes and income taxes at the statutory U.S. federal income tax rate is as follows (in thousands, except amounts pertaining to rate which are shown as a percentage):

	Year ended December 31,	
	2021	**2020**
Federal statutory rate	21.00%	21.00%
Effect of:		
Change in valuation allowance	(28.39)	(22.65)
Return to provision and deferred true-up	(0.26)	0.11
Change in rate	3.00	0.82
State tax benefit (net of federal)	5.14	3.51
Warrant liability	(0.06)	(0.30)
Stock-based compensation	(2.68)	(2.18)
PPP Loan forgiveness	1.94	-
Other	(0.08)	(0.05)
Federal income tax provision effective rate	(0.39)%	0.26%

The components of deferred tax assets and liabilities are as follows (in thousands):

	December 31,	
	2021	**2020**
Deferred tax assets relating to:		
Net operating loss carryforwards	$ 60,977	$ 59,050
Research and development tax carryforward	6,411	6,411
Stock-based compensation	4,807	4,219
Right-of-use liability	424	527
Property and equipment	14	18
Other deferred tax assets	288	343
Total gross deferred tax assets	72,921	70,568
Deferred tax liabilities relating to:		
Right-of-use asset	(401)	(464)
Other deferred tax liabilities	(9)	(12)
Total gross deferred tax liabilities	(410)	(476)
Deferred tax assets less liabilities	72,511	70,092
Valuation allowance	(72,511)	(70,092)
Net deferred tax asset (liability)	$ -	$ -

In assessing the realizability of deferred tax assets, management considers 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 those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. Based upon the level of historical taxable income (losses) and projections for future taxable income (losses) over the periods in which the deferred tax assets are deductible, management believes it is more likely than not that the Company will not realize the benefits of these deductible differences in the future.

The Company had the following federal net operating loss carryforward and research activities credits as of December 31, 2021 (in thousands):

Year Incurred	Net Operating Loss CF	Research Activities Cr.	Expiration
2007	$ 454	$ 30	2027
2008	1,178	65	2028
2009	3,060	176	2029
2010	3,423	149	2030
2011	9,929	176	2031
2012	-	170	2032
2013	4,353	133	2033
2014	15,897	894	2034
2015	23,496	598	2035
2016	41,580	745	2036
2017	34,776	652	2037
2018	56,099	2,271	Indefinite
2019	22,922	352	Indefinite
2020	8,784	-	Indefinite
2021	7,328	-	Indefinite
	$ 233,279	$ 6,411	

The Company also has certain state net operating loss carryforwards totaling $219.0 million, $142.4 million of which, if not utilized, will begin to expire in 2027 and $76.6 million of which have no expiration date. Due to potential ownership changes that may have occurred or would occur in the future, Internal Revenue Code Section 382 may place additional limitations on the Company’s ability to utilize the net operating loss carryforward.

ASC 740-10, *Accounting for Uncertainty in Income Taxes*, uses the term “more likely than not” to evaluate whether or not a tax position will be sustained upon examination. The Company has not identified any tax positions that do not meet the more likely than not threshold.

On March 27, 2020, the CARES Act was enacted into law in response to the COVID-19 pandemic. The Company has evaluated the various income and payroll tax provisions and expects little or no impact to income tax expense.

O. Net Loss Per Share

Under the two-class method, for periods with net income, basic net income per share of common stock is computed by dividing the net income attributable to shares of common stock by the weighted average number of shares of common stock outstanding during the period. Net income attributable to shares of common stock is computed by subtracting from net income the portion of current period earnings that participating securities would have been entitled to receive pursuant to their dividend rights had all of the period's earnings been distributed. No such adjustment to earnings is made during periods with a net loss as the holders of the participating securities have no obligation to fund losses. Diluted net income (loss) per share of common stock is computed under the two-class method by using the weighted average number of shares of common stock outstanding plus the potential dilutive effects of stock options and warrants. In addition, the Company analyzes the potential dilutive effect of the outstanding convertible securities under the if-converted method when calculating diluted income (loss) per share of common stock in which it is assumed that the outstanding convertible securities convert into common stock at the beginning of the period or date of issuance, if the convertible security was issued during the period. The Company reports the more dilutive of the approaches (two-class or if-converted) as its diluted net income (loss) per share of common stock during the period.

The following securities, presented on a common stock equivalent basis, have been excluded from the calculation of weighted average number of shares of common stock outstanding because their effect is anti-dilutive:

	December 31,	
	2021	**2020**
Conversion of Deerfield Convertible Note	-	81,101
Conversion of January 2020 Note	-	34,615
Conversion of December 2019 Notes	-	625,747
Outstanding awards under equity incentive plans	1,273,879	355,785
Outstanding common stock warrants	4,221,350	151,442
Total securities excluded from the calculation of weighted average number of shares of common stock outstanding	5,495,229	1,248,690

A reconciliation from net loss to basic net loss attributable to common stockholders per share of common stock and diluted net loss attributable to common stockholders per share of common stock for the years ended December 31, 2021, and 2020, is as follows (in thousands):

	December 31,	
	2021	**2020**
Basic net loss per share of common stock:		
Net loss	$ (8,555)	$ (12,760)
Less: Dividends declared or accumulated	(54,342)	-
Net loss attributable to common stockholders	**$ (62,897)**	**$ (12,760)**
Less: Net loss attributable to participating securities	-	-
Undistributed net loss attributable to shares of common stockholders, basic	**$ (62,897)**	**$ (12,760)**
Weighted average number of shares of common stock outstanding, basic	29,766	3,981
Basic net loss attributable to common stockholders per share of common stock	**$ (2.11)**	**$ (3.21)**
Diluted net loss per share of common stock:		
Undistributed net loss attributable to common stockholders	$ (62,897)	$ (12,760)
Less: Fair value adjustment income related to KVK Warrant liability	(26)	-
Undistributed net loss attributable to common stockholders, diluted	**$ (62,923)**	**$ (12,760)**
Weighted average number of shares of common stock outstanding, basic	29,766	3,981
Dilutive effect of KVK Warrant	0	-
Weighted-average number of shares of common stock outstanding, diluted	**29,766**	**3,981**
Diluted loss attributable to common stockholders per share of common stock	**$ (2.11)**	**$ (3.21)**

P. Severance Expense

In February 2020, the Company eliminated the chief business officer role. In connection with the elimination, the chief business officer was entitled to severance benefits as documented in his Amended and Restated Employment Agreement entered into in June 2015. The severance benefits consisted of personnel and other related charges of approximately $0.4 million and stock compensation expense of approximately $0.4 million related to the acceleration of vesting on unvested shares subject to certain stock options. These severance benefits are presented as severance expense in the statements of operations for the year ended December 31, 2020. As of December 31, 2020, the Company had accrued severance expense recorded within accounts payable and accrued expenses in the amount of $0.1 million. For the year ended December 31, 2021, there was no severance expense. As of December 31, 2021, there was no accrued severance expense.

Q. Employee Benefit Plan

The Company has a 401(k) retirement plan (the “401(k) Plan”) that covers substantially all employees. The Company may provide a discretionary match with a maximum amount of 4% of the participant’s compensation, which vests immediately. The Company made matching contributions under the 401(k) Plan of $164,000 and $145,000 for the years ended December 31, 2021, and 2020, respectively.

The Company has a discretionary profit sharing plan (the “Profit Sharing Plan”) that covers all employees. Employees become eligible participants in the Profit Sharing Plan once they have provided three years of service to the Company. The Company made no contributions to the Profit Sharing Plan in 2021 or 2020.

R. Subsequent Events

On January 25, 2022, the Company filed an amendment to the registration statement on Form S-1 (File No. 333-250945) on Form S-3 covering the issuance of the shares of the Company's common stock issuable upon the exercise of the warrants issued in the Public Offering and remaining unexercised as of the date of the amendment, which was declared effective on February 1, 2022.

From January 1, 2022, through March 29, 2022, the Company repurchased 589,792 shares of its common stock for approximately $4.7 million under the Share Repurchase Program.

EXHIBITS

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation of KemPharm, Inc. (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on April 21, 2015).
3.1.1	Certificate of Amendment of Amended and Restated Certificate of Incorporation of the Company, effective as of December 23, 2020 (incorporated herein by reference to Registrant's Current Report on Form 8-K as filed with the SEC on December 23, 2020).
3.1.2	Certificate of Elimination of Series A Convertible Preferred Stock of KemPharm, Inc. (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on June 23, 2021).
3.1.3	Certificate of Elimination of Series B-1 Convertible Preferred Stock of KemPharm, Inc. (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on June 23, 2021).
3.1.4	Certificate of Elimination of Series B-2 Convertible Preferred Stock of KemPharm, Inc. (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on June 23, 2021).
3.2	Amended and Restated Bylaws, as currently in effect, of KemPharm, Inc. (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on July 17, 2020).
4.1	Specimen stock certificate evidencing shares of Common Stock (incorporated herein by reference to the Registrant's Annual Report on Form 10-K as filed with the SEC on March 12, 2021).
4.2	Form of Common Stock Purchase Warrant and schedule of holders (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on January 13, 2021).
4.3	Form of Inducement Warrant (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on January 26, 2021).
4.4	Form of Inducement Warrant (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on June 23, 2021).
4.5*	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934.
10.1+	Material Supply Agreement, by and between the Registrant and Johnson Matthey, Inc., dated as of November 2, 2009 (incorporated by reference Registrant's Amendment No. 1 to Registration Statement on Form S-1/A (File No. 333-202660) as filed with the SEC on April 3, 2015).
10.2	Payoff letter, dated as of February 8, 2021, by and among the Company and the lenders named therein (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on February 9, 2021).
10.3	Second Amendment to Senior Secured Convertible Note and Warrant, by and between Registrant and Deerfield Private Design Fund III, L.P., dated January 6, 2016 (incorporated by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on January 11, 2016).
10.3.1	Fourth Amendment to Senior Secured Convertible Note and Warrant, effective as of October 3, 2016, by and between KemPharm, Inc. and Deerfield Private Design Fund III, L.P. (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on October 3, 2016).
10.3.2	Amendment to Convertible Note and Warrant Agreement, dated November 20, 2018, between the Company and Deerfield Private Design Fund III, L.P. (as incorporated herein by reference to the Company's Current Report on Form 8-K filed with the SEC on November 20, 2018).
10.3.3	Seventh Amendment to Senior Secured Convertible Note and Sixth Amendment to Warrant, dated February 28, 2019, between the Company and Deerfield Private Design Fund III, L.P. (incorporated herein by reference to the Registrant's Annual Report on Form 10-K as filed with the SEC on March 1, 2019).
10.3.4	Amendment to Senior Secured Convertible Notes and Amendment to Warrant, dated as of February 17, 2020, by and among Registrant and the noteholders party thereto (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on February 18, 2020)
10.3.5	Amendment to Senior Secured Convertible Notes and Amendment to Warrant, dated as of January 12, 2021, by and among the Company, Deerfield Private Design Fund III, L.P. and Deerfield Special Situations Fund, L.P.(incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on January 13, 2021)
10.4	Warrant to Purchase Shares of Series D Preferred Stock issued to Deerfield Private Design Fund III, L.P., dated as of June 2, 2014 (incorporated herein by reference to the Registrant's Registration Statement on Form S-1 (File No. 333-202660) as filed with the SEC on March 11, 2015).
10.4.1	Form of Stock Purchase Warrant to purchase shares of Series D Convertible Preferred Stock issued in bridge financing, along with a schedule of warrant holders (incorporated herein by reference to the Registrant's Registration Statement on Form S-1 (File No. 333-202660) as filed with the SEC on March 11, 2015).

EXHIBITS, CONTINUED

Exhibit No.	Description
10.5	Amended and Restated Investors' Rights Agreement, dated as of February 19, 2015, by and among the Registrant and certain of its stockholders (incorporated herein by reference to the Registrant's Registration Statement on Form S-1 (File No. 333-202660) as filed with the SEC on March 11, 2015).
10.6+	Agreement to Terminate CLA, by and between MonoSol Rx, LLC and the Registrant, dated as of March 20, 2012 (incorporated herein by reference to the Registrant's Amendment No. 1 to Registration Statement on Form S-1/A (File No. 333-202660) as filed with the SEC on April 3, 2015).
10.7#	Incentive Stock Plan, as amended to date (incorporated herein by reference to the Registrant's Registration Statement on Form S-1 (File No. 333-202660) as filed with the SEC on March 11, 2015).
10.7.1#	Form of Incentive Stock Option Agreement under Incentive Stock Plan (incorporated herein by reference to the Registrant's Registration Statement on Form S-1 (File No. 333-202660) as filed with the SEC on March 11, 2015).
10.7.2#	Form of Nonqualified Stock Option Agreement under Incentive Stock Plan (incorporated herein by reference to the Registrant's Registration Statement on Form S-1 (File No. 333-202660) as filed with the SEC on March 11, 2015).
10.7.3#	Equity Incentive Plan (incorporated herein by reference to the Registrant's Quarterly Report on Form 10-Q as filed with the SEC on August 13, 2021).
10.7.4#	Form of Stock Option Grant Notice and Stock Option Agreement under 2014 Equity Incentive Plan (incorporated herein by reference to the Registrant's Registration Statement on Form S-1 File No. 333-202660) as filed with the SEC on March 11, 2015).
10.7.5#	Form of Restricted Stock Unit Grant Notice and Restricted Stock Unit Agreement under 2014 Equity Incentive Plan (incorporated herein by reference to the Registrant's Registration Statement on Form S-1 File No. 333-202660) as filed with the SEC on March 11, 2015).
10.7.6#	Form of Restricted Stock Award Grant Notice and Restricted Stock Award Agreement under 2014 Equity Incentive Plan (incorporated herein by reference to the Registrant's Quarterly Report on Form 10-Q as filed with the SEC on May 14, 2019)
10.7.7#	2021 Employee Stock Purchase Plan (incorporated herein by reference to the Registrant's Quarterly Report on Form 10-Q as filed with the SEC on August 13, 2021).
10.8#	Sixth Amended and Restated Non-Employee Director Compensation Policy (incorporated herein by reference to the Registrant's Annual Report on Form 10-K as filed with the SEC on March 12, 2021).
10.9#	Form of Indemnification Agreement with the Registrant's directors and executive officers (incorporated herein by reference to the Registrant's Registration Statement on Form S-1 (File No. 333-202660) as filed with the SEC on March 11, 2015).
10.10#	Amended and Restated Employment Agreement by and between the Registrant and R. LaDuane Clifton, dated as of June 25, 2015 (incorporated herein by reference to the Registrant's Quarterly Report on Form 10-Q as filed with the SEC on August 14, 2015).
10.10.1#	Amendment to Amended and Restated Employment Agreement by and between the Registrant and R. LaDuane Clifton, dated as of October 13, 2015 (incorporated herein by reference to the Registrant's Quarterly Report on Form 10-Q as filed with the SEC on November 13, 2015).
10.11#	Employment Agreement by and between the Registrant and Christal M.M. Mickle, dated as of May 30, 2014 (incorporated herein by reference to the Registrant's Registration Statement on Form S-1 (File No. 333-202660) as filed with the SEC on March 11, 2015).
10.11.1#	Amendment to Employment Agreement by and between the Registrant and Christal M.M. Mickle, dated as of October 13, 2015 (incorporated herein by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed with the SEC on November 13, 2015).
10.12#	Employment Agreement by and between the Registrant and Travis C. Mickle, Ph.D., dated as of May 30, 2014 (incorporated herein by reference to the Registrant's Registration Statement on Form S-1 (File No. 333-202660) as filed with the SEC on March 11, 2015).
10.12.1#	Amendment to Employment Agreement by and between the Registrant and Travis C. Mickle, Ph.D., dated as of October 13, 2015 (incorporated herein by reference to the Registrant's Quarterly Report on Form 10-Q filed with the SEC on November 13, 2015).
10.13#	Amended and Restated Employment Agreement by and between the Registrant and Sven Guenther, dated as of April 13, 2016 (incorporated herein by reference to the Registrant's Quarterly Report on Form 10-Q as filed with the SEC on May 13, 2016).
10.14#	Executive Employment Agreement by and between the Registrant and Richard W. Pascoe, dated as of November 5, 2021 (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on November 10, 2021).

EXHIBITS, CONTINUED

Exhibit No.	Description
10.15	Lease Agreement, by and between KemPharm, Inc. and BRE/COH FL LLC, dated as of November 3, 2014 (incorporated herein by reference to the Registrant's Annual Report on Form 10-K as filed with the SEC on March 10, 2017).
10.15.1	First Amendment to the Lease Agreement, by and between KemPharm, Inc. and BRE/COH FL LLC, dated as of April 21, 2015 (incorporated herein by reference to the Registrant's Annual Report on Form 10-K as filed with the SEC on March 10, 2017).
10.15.2	Second Amendment to the Lease Agreement, by and between KemPharm, Inc. and BRE/COH FL LLC, dated as of December 22, 2015 (incorporated herein by reference to the Registrant's Annual Report on Form 10-K as filed with the SEC on March 10, 2017).
10.15.3	Third Amendment to the Lease Agreement, by and between KemPharm, Inc. and BRE/COH FL LLC, dated as of July 15, 2016 (incorporated herein by reference to the Registrant's Annual Report on Form 10-K as filed with the SEC on March 10, 2017).
10.16+	Collaboration and License Agreement by and between the Company and KVK Tech, Inc. dated as of October 25, 2018 (incorporated herein by reference to the Registrant's Annual Report on Form 10-K as filed with the SEC on March 1, 2019).
10.16.1+	Warrant to Purchase Shares of Common Stock issued to KVK Tech, Inc. dated October 25, 2018 (incorporated herein by reference to the Registrant's Annual Report on Form 10-K as filed with the SEC on March 1, 2019).
10.17	Purchase Agreement, dated February 17, 2020, by and between the KemPharm, Inc. and Lincoln Park Capital Fund, LLC. (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on February 18, 2020).
10.18+	Collaboration and License Agreement, dated as of September 3, 2019, by and between KemPharm, Inc. and Boston Pharmaceuticals Holdings SA.(incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on September 4, 2019)
10.19+	Amendment No. 1 to Collaboration and License Agreement, effective as of April 8, 2021, by and between the Company and Commave Therapeutics SA (formerly known as Boston Pharmaceuticals Holdings SA) (incorporated herein by reference to the Registrant's Quarterly Report on Form 10-Q as filed with the SEC on August 13, 2021).
10.20	Form of Inducement Letter (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on January 26, 2021).
10.21	Form of Inducement Letter (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on June 23, 2021).
10.22	Equity Distribution Agreement, dated July 2, 2021, by and among the Company, JMP Securities LLC and RBC Capital Markets, LLC (incorporated herein by reference to the Registrant's Current Report on Form 8-K as filed with the SEC on July 2, 2021).
23.1*	Consent of RSM US LLP, Independent Registered Public Accounting Firm.
24.1*	Power of Attorney (included on signature page).
31.1*	Certification of the Principal Executive Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended.
31.2*	Certification of the Principal Financial Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended.
32.1**	Certification of the Principal Executive Officer pursuant to Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certification of the Principal Financial Officer pursuant to Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

EXHIBITS, CONTINUED

Exhibit No.	Description
101.INS*	Inline XBRL Instance 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.
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104	Cover Page Interactive Data File (embedded within the Inline XBRL and contained in Exhibit 101)

*	Filed herewith
**	Furnished herewith
#	Indicates management contract or compensatory plan.
+	Certain portions of the exhibit, identified by the mark, "[*]", have been omitted because such portions contained information that is both (i) not material and (ii) the type that the Registrant treats as private or confidential.

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.

KemPharm, Inc.

Dated: March 30, 2022

By: /s/ Travis C. Mickle
Travis C. Mickle, Ph.D.
President and Chief Executive Officer
(Principal Executive Officer)

Dated: March 30, 2022

By: /s/ R. LaDuane Clifton
R. LaDuane Clifton, CPA
Chief Financial Officer, Secretary and Treasurer
(Principal Financial Officer)

POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS, that each person whose signature appears below hereby constitute and appoint Travis C. Mickle and R. LaDuane Clifton, and each of them (with full power to each of them to act alone), as his true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution in each of them for him and in his name, place and stead, and in any and all capacities, to sign any and all amendments to this report, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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/ Travis C. Mickle Travis C. Mickle, Ph.D.	President, Chief Executive Officer and Director (Principal Executive Officer)	March 30, 2022
/s/ R. LaDuane Clifton R. LaDuane Clifton, CPA	Chief Financial Officer, Secretary and Treasurer (Principal Financial Officer)	March 30, 2022
/s/ Timothy J. Sangiovanni Timothy J. Sangiovanni, CPA	Vice President, Corporate Controller (Principal Accounting Officer)	March 30, 2022
/s/ Matthew R. Plooster Matthew R. Plooster	Director	March 30, 2022
/s/ Richard W. Pascoe Richard W. Pascoe	Executive Chairman of the Board of Directors	March 30, 2022
/s/ Joseph B. Saluri Joseph B. Saluri	Director	March 30, 2022
/s/ Tamara A. Seymour Tamara A. Seymour	Director	March 30, 2022
/s/ David S. Tierney David S. Tierney	Director	March 30, 2022

Exhibit 4.5

DESCRIPTION OF THE REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

KemPharm, Inc. ("we," "our," or "us") has one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended, our common stock, par value $0.0001 per share, or common stock. The following description of our capital stock is a summary and does not purport to be complete. It is qualified in its entirety by, and should be read in conjunction with, our amended and restated certificate of incorporation, amended and restated bylaws and applicable Delaware law.

General

Under our amended and restated certificate of incorporation we are authorized to issue up to 250,000,000 shares of common stock and 10,000,000 shares of preferred stock, $0.0001 par value per share, all of which are currently undesignated. Our board of directors may establish the rights and preferences of the undesignated preferred stock from time to time.

Common Stock

Voting Rights

Each holder of our common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. Under our amended and restated certificate of incorporation and amended and restated bylaws, our stockholders do not have cumulative voting rights. The affirmative vote of the majority (plurality, in the case of the election of directors) of shares present and entitled to vote generally on a subject matter shall be the act of the stockholders.

Dividends

Subject to preferences that may be applicable to any then-outstanding preferred stock, holders of our common stock are entitled to receive ratably those dividends, if any, as may be declared from time to time by the board of directors out of legally available funds.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then-outstanding shares of preferred stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion or subscription rights and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our preferred stock that we may designate in the future.

Preferred Stock

Pursuant to our amended and restated certificate of incorporation, our board of directors has the authority, without further action by the stockholders (unless such stockholder action is required by applicable law or stock exchange listing rules), to designate and issue up to 10,000,000 shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the designations, powers, preferences, privileges and relative participating, optional or special rights and the qualifications, limitations or restrictions thereof, including dividend rights, conversion rights, voting rights, terms of redemption and liquidation preferences, any or all of which may be greater than the rights of our common stock, and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding. Our board of directors, without stockholder approval, can issue preferred stock with voting, conversion or other rights that could adversely affect the voting power and other rights of the holders of our common stock. Preferred stock could be issued quickly with terms designed to delay or prevent a change in control of our company or make removal of management more difficult. Additionally, the issuance of preferred stock may have the effect of decreasing the market price of our common stock and may adversely affect the voting power of holders of our common stock and reduce the likelihood that our common stockholders will receive dividend payments and payments upon liquidation.

Our board of directors will fix the designations, voting powers, preferences and rights, as well as the qualifications, limitations or restrictions, of the preferred stock of each series that we offer in the certificate of designation relating to that series.

The Delaware General Corporation Law, the law governing corporations in the state of our incorporation, provides that the holders of preferred stock will have the right to vote separately as a class (or, in some cases, as a series) on an amendment to our certificate of incorporation if the amendment would change the par value or, unless the certificate of incorporation provided otherwise, the number of authorized shares of the class or change the powers, preferences or special rights of the class or series so as to adversely affect the class or series, as the case may be. This right is in addition to any voting rights that may be provided for in the applicable certificate of designation.

Outstanding Warrants

Our warrants include a net exercise provision and contain provisions for the adjustment of the exercise price and the number of shares issuable upon the exercise of each warrant in the event of certain stock dividends, stock splits, reorganizations, reclassifications and consolidations. We have also granted registration rights to Deerfield Private Design Fund III, L.P., or Deerfield, as more fully described below under "—Registration Rights."

In June 2014, in connection with our entering into a facility agreement, we issued to Deerfield a warrant, or the Deerfield Warrant, to purchase 14,423,076 shares of Series D redeemable convertible preferred stock at an exercise price of $0.78 per share, which is exercisable until June 2, 2024. Upon completion of our initial public offering, the Deerfield Warrant automatically converted into a warrant to purchase 120,192 shares of our common stock at an exercise price of $93.60 per share. According to the terms of the Deerfield Warrant, in no event may Deerfield exercise this warrant if such exercise would result in Deerfield beneficially owning more than 4.985% of the then issued and outstanding shares of our common stock. This exercise limitation may not be waived and any purported exercise that is inconsistent with this exercise limitation is null and void. This exercise limitation will not apply to any exercise made immediately prior to a change of control transaction. If Deerfield is only able to exercise the Deerfield Warrant for a limited number of shares due to this exercise limitation, the Deerfield Warrant could subsequently become exercisable to purchase the remainder of the shares as a result of a variety of events. This could occur, for example, if we issue more shares or Deerfield sells some of its existing shares. The Deerfield Warrant includes a net exercise provision and contains provisions for the adjustment of the exercise price and the number of shares issuable upon the exercise of the warrant in the event of certain stock dividends, stock splits, recapitalizations, reclassifications and consolidations. Under the Deerfield Warrant, Deerfield also has the right to demand upon the occurrence of specified events, including a merger, asset sale or other change of control transaction, that we redeem the Deerfield Warrant for a cash amount equal to the Black-Scholes value of the portion of the Deerfield Warrant to be redeemed. If Deerfield chooses not to redeem the Deerfield Warrant upon the occurrence of such an event, we may not enter into any such transaction unless our successor entity assumes in writing all our obligations under both the Deerfield Warrant and the Deerfield facility and provides Deerfield with certain registration rights.

The Deerfield Warrant includes certain exercise price protection provisions pursuant to which the exercise price of the Deerfield Warrant will be adjusted downward on a broad-based weighted average basis if we issue or sell any shares of common stock, convertible securities, warrants or options, at a sale or exercise price per share less than the greater of the Deerfield Warrant's exercise price or the closing sale price of our common stock on our principal market or exchange on the last trading date immediately prior to such issuance or, in the case of a firm commitment underwritten offering, on the date of execution of the underwriting agreement between us and the underwriters for such offering. The sale price for purposes of this adjustment is measured after giving effect to any underwriting discounts and commissions. This exercise price adjustment does not apply to certain specified sales and in any offering deemed by the Securities and Exchange Commission, or the SEC, to constitute an "at the market offering" as defined in Rule 415 of the Securities Act of 1933, or the Securities Act, of our common stock, the exercise price of the Deerfield Warrant will be adjusted downward pursuant to this anti-dilution adjustment only if such sales are made at a price less than $93.60 per share. In 2021, we entered into a two separate warrant inducement transactions which triggered these exercise price protection provision and the exercise price of the Deerfield Warrant was reduced from $93.60 per share to $46.25 per share and finally to $38.34 per share.

In October 2018, in connection with the APADAZ License Agreement, we issued to KVK-Tech, or KVK, a warrant to purchase up to 500,000 shares of our common stock of at an exercise price of $2.30 per share, which reflected the closing price of our common stock on the Nasdaq Stock Market on the execution date of the APADAZ License Agreement, or the KVK Warrant. The KVK Warrant is initially not exercisable for any shares of common stock. Upon the achievement of each of four specified milestones under the KVK Warrant, the KVK Warrant will become exercisable for an additional 125,000 shares, up to an aggregate of 500,000 shares of our common stock. The exercise price and the number and type of shares underlying the KVK Warrant are subject to adjustment in the event of specified events, including a reclassification of our common stock, a subdivision or combination of our common stock, or in the event of specified dividend payments. The KVK Warrant is exercisable until October 24, 2023. Upon exercise, the aggregate exercise price may be paid, at KVK's election, in cash or on a net issuance basis, based upon the fair market value of our common stock at the time of exercise. After giving effect to the reverse stock split, effected in December 2020, the exercise price of the KVK Warrant became $36.80 and the shares of common stock issuable upon exercise of the KVK Warrant became 31,250 shares of common stock.

In January 2021, pursuant to the terms of the underwriting agreement and the December 2020 exchange agreement, we issued warrants to purchase 12,078,361 shares of our common stock, or collectively, the Offering Warrants, in a public offering and in connection with the transactions contemplated under the December 2020 exchange agreement. The Offering Warrants were immediately exercisable and expire on the fifth anniversary of their issuance date, at an exercise price per share of common stock equal to $6.50 per share. The Offering Warrants are exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice, provided that payment in full for the number of shares of our common stock purchased upon such exercise is delivered to us in accordance with the terms of the Offering Warrants. In lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the Offering Warrants. A holder (together with its affiliates) may not exercise any portion of the Offering Warrant to the extent that the holder and its affiliates and any other person or entities with which such holder would constitute a Section 13(d) "group" would own more than 4.99% of our outstanding common stock immediately after exercise. Except as otherwise provided in the Offering Warrants or by virtue of such holder's ownership of shares of our common stock, the holders of the Offering Warrants do not have the rights or privileges of holders of common stock with respect to the shares of common stock underlying the Offering Warrants, including any voting rights, until they exercise their Offering Warrants. The Offering Warrants provide that holders have the right to participate in distributions or dividends paid on our common stock. In the event of a fundamental transaction, as described in the Offering Warrants and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of more than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding common stock, the holders of the Offering Warrants will be entitled to receive upon exercise of the warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Offering Warrants immediately prior to such fundamental transaction. In addition, in the event of a fundamental transaction which is approved by our board of directors, the holders of the warrants have the right to require us or a successor entity to redeem the Offering Warrants for cash in the amount of the Black Scholes value of the unexercised portion of the Offering Warrants on the date of the consummation of the fundamental transaction. In the event of a fundamental transaction which is not approved by our board of directors, the holders of the Offering Warrants have the right to require us or a successor entity to redeem the Offering Warrants in the amount of the Black Scholes value of the unexercised portion of the Offering Warrants on the date of the consummation of the fundamental transaction payable in the form of consideration paid to the holders of common stock in such fundamental transaction. The Offering Warrants meet the equity classification requirements and thus are recorded in additional paid-in capital on the balance sheets.

In January 2021, pursuant to the terms of an underwriting agreement, we issued to the underwriter a warrant to purchase 806,932 shares of our common stock, or the Underwriter Warrant. The Underwriter Warrant is subject to substantially the same terms and conditions as the Offering Warrants, provided that the exercise price for the Underwriter Warrant is $8.125 per share. In connection with the closing of the underwriter's partial exercise of its over-allotment option, in February 2021, we issued to the underwriter additional warrants to purchase 18,702 shares of common stock under the same terms as the Underwriter Warrant, collectively these are known as the Underwriter Warrants.

In January 2021, we entered into warrant exercise inducement offer letters, or the January 2021 Inducement Transaction, with certain holders of the Offering Warrants pursuant to which such holders agreed to exercise for cash their existing warrants to purchase 6,620,358 shares of our common stock in exchange for our agreement to issue new warrants, or the January 2021 Inducement Warrants, on substantially the same terms as the existing warrants, except as set forth in the following sentence, to purchase up to 7,944,430 shares of our common stock, which is equal to 120% of the number of shares of our common stock issued upon exercise of the existing warrants. The purchase price of the January 2021 Inducement Warrants was $0.125 per share underlying each January 2021 Inducement Warrant, and the January 2021 Inducement Warrants have an exercise price of $6.36 per share.

In June 2021, we entered into warrant exercise inducement offer letters, or the June 2021 Inducement Transaction, with certain holders of the January 2021 Inducement Warrants pursuant to which such holders agreed to exercise for cash their January 2021 Inducement Warrants to purchase 6,117,509 shares of our common stock in exchange for our agreement to issue new warrants, the June 2021 Inducement Warrants, on substantially the same terms as the January 2021 Inducement Warrants, except as set forth in the following sentence, to purchase up to 1,529,379 shares of our common stock, which is equal to 25% of the number of shares of our common stock issued upon exercise of the January 2021 Inducement Warrants. The purchase price of the June 2021 Inducement Warrants was $0.125 per share underlying each June 2021 Inducement Warrant, and the June 2021 Inducement Warrants have an exercise price of $16.50 per share.

Registration Rights

Investors' Rights Agreement

We and the holders of shares of our common stock issued upon the conversion or reclassification of our redeemable convertible preferred stock have entered into an investors' rights agreement. The registration rights provisions of this agreement expired as to all holders of our capital stock, other than Deerfield, on the second anniversary of our initial public offering. The registration rights provisions of our investors' rights agreement currently provide Deerfield with the registration rights described in more detail below.

Demand Registration Rights

Deerfield has the right to demand that we file a Form S-1 registration statement, as long as the anticipated aggregate offering price, net of underwriting discounts and commissions, would exceed $15.0 million. These registration rights are subject to specified conditions and limitations, including the right of the underwriters, if any, to limit the number of shares included in any such registration under specified circumstances. Upon such a request, we are required to effect the registration as soon as reasonably possible.

Piggyback Registration Rights

If we propose to register any of our securities under the Securities Act either for our own account or for the account of other stockholders, Deerfield will be entitled to include its shares of our common stock in the registration statement. These piggyback registration rights are subject to specified conditions and limitations, including the right of the underwriters to limit the number of shares included in any such registration under specified circumstances.

Registration on Form S-3

Deerfield is entitled, upon its written request, to have such shares registered by us on a Form S-3 registration statement at our expense, subject to other specified conditions and limitations.

Expenses of Registration

We will pay all expenses relating to any demand, piggyback or Form S-3 registration, other than underwriting discounts and commissions, subject to specified conditions and limitations.

Termination of Registration Rights

The registration rights granted under the investors' rights agreement terminated as to all the holders of our capital stock, other than Deerfield, on the two-year anniversary of our initial public offering. These registration rights will terminate as to Deerfield upon the earliest to occur of (i) written consent of Deerfield, (ii) such time that the Deerfield Warrant has been exercised in full and Rule 144 or another similar exemption under the Securities Act is available for the sale of all shares of our capital stock held by Deerfield without limitation during a three-month period without registration or (iii) six-months following the expiration of the Deerfield Warrant.

Anti-Takeover Provisions

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding, but not the outstanding voting stock owned by the interested stockholder, those shares owned (i) by persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines a "business combination" to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;

- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;

- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or

- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits by or through the corporation.

In general, Section 203 defines an "interested stockholder" as an entity or person who, together with the person's affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

Certificate of Incorporation and Bylaws

Our amended and restated certificate of incorporation provides for our board of directors to be divided into three classes with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. The affirmative vote of the majority (plurality, in the case of the election of directors) of shares present and entitled to vote generally on a subject matter shall be the act of the stockholders. Our amended and restated certificate of incorporation and our amended and restated bylaws also provide that directors may be removed by the stockholders only for cause upon the vote of 66 2/3% or more of our outstanding common stock. Furthermore, the authorized number of directors may be changed only by resolution of the board of directors, and vacancies and newly created directorships on the board of directors may, except as otherwise required by law or determined by the board of directors, only be filled by a majority vote of the directors then serving on the board of directors, even though less than a quorum.

Our amended and restated certificate of incorporation and amended and restated bylaws also provide that all stockholder actions must be effected at a duly called meeting of stockholders and eliminates the right of stockholders to act by written consent without a meeting. Our amended and restated bylaws also provide that only our chairman of the board, chief executive officer or the board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors may call a special meeting of stockholders.

Our amended and restated bylaws also provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide timely advance notice in writing, and specify requirements as to the form and content of a stockholder's notice.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that the stockholders cannot amend many of the provisions described above except by a vote of 66 2/3% or more of our outstanding common stock.

The combination of these provisions make it more difficult for our existing stockholders to replace our board of directors as well as for another party to obtain control of us by replacing our board of directors. Since our board of directors has the power to retain and discharge our officers, these provisions also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change our control.

These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and its policies and to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to reduce our vulnerability to hostile takeovers and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of delaying changes in our control or management. As a consequence, these provisions may also inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts. We believe that the benefits of these provisions, including increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure our company, outweigh the disadvantages of discouraging takeover proposals, because negotiation of takeover proposals could result in an improvement of their terms.

Choice of Forum

Our amended and restated bylaws provide that (1) unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if and only if the Court of Chancery of the State of Delaware lacks subject matter jurisdiction, any state court located within the State of Delaware or, if and only if all such state courts lack subject matter jurisdiction, the federal district court for the District of Delaware) shall be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (A) any derivative action or proceeding brought on behalf of us; (B) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any current or former director, officer or other employee of us, to us or our stockholders; (C) any action or proceeding asserting a claim against us any current or former director, officer or other employee of us, arising out of or pursuant to any provision of the Delaware General Corporation Law, or the DGCL, our amended and restated certificate of incorporation or our amended and restated bylaws (as each may be amended from time to time); (D) any action or proceeding to interpret, apply, enforce or determine the validity of our amended and restated certificate of incorporation or our amended and restated bylaws (including any right, obligation, or remedy thereunder); (E) any action or proceeding as to which the DGCL confers jurisdiction to the Court of Chancery of the State of Delaware; and (F) any action or proceeding asserting a claim against us or any director, officer or other employee of us, governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants, provided that this provision shall not apply to suits brought to enforce a duty or liability created by the Securities Act or the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction; (2) unless we consent in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act; and (3) any person or entity holding, owning or otherwise acquiring any interest in any of our securities shall be deemed to have notice of and consented to the provisions of our amended and restated bylaws.

Listing on the Nasdaq Stock Market

Our common stock is listed on the Nasdaq Global Select Market under the symbol "KMPH."

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statements (No. 333-234235, No. 333-252078, No. 333-252903, No. 333-257433, No. 333-257661 and No. 333-250945) on Form S-3 and Registration Statements (No. 333-203703, No. 333-210369, No. 333-216858, No. 333-224062, No. 333-230041, No. 333-236794, No. 333-252743 and No. 333-257429) on Form S-8 of KemPharm, Inc. of our report dated March 30, 2022 relating to the financial statements of KemPharm, Inc., appearing in this Annual Report on Form 10-K of KemPharm, Inc. for the year ended December 31, 2021.

/s/ RSM US LLP

Orlando, Florida
March 30, 2022

Exhibit 31.1

CERTIFICATIONS

I, Travis C. Mickle, certify that:

1. I have reviewed this Annual Report on Form 10-K of KemPharm, 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 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 functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

March 30, 2022

/s/ Travis C. Mickle

Name: Travis C. Mickle, Ph.D.

Title: President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATIONS

I, R. LaDuane Clifton, certify that:

1. I have reviewed this Annual Report on Form 10-K of KemPharm, 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 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 functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

March 30, 2022

/s/ R. LaDuane Clifton

Name: R. LaDuane Clifton, CPA

Title: Chief Financial Officer, Secretary and Treasurer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION OF THE PRINCIPAL EXECUTIVE OFFICER
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 KemPharm, Inc., (the "Company") for the fiscal year ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Travis C. Mickle, Principal Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

March 30, 2022

/s/ Travis C. Mickle
Name: Travis C. Mickle, Ph.D.
Title: President and Chief Executive Officer
(Principal Executive Officer)

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350, is not being "filed" by the Company as part of the Report or as a separate disclosure document and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Report), irrespective of any general incorporation language contained in such filing.

Exhibit 32.2

CERTIFICATION OF THE PRINCIPAL FINANCIAL OFFICER
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 KemPharm, Inc., (the "Company") for the fiscal year ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, R. LaDuane Clifton, Principal Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

March 30, 2022

/s/ R. LaDuane Clifton
Name: R. LaDuane Clifton, CPA
Title: Chief Financial Officer, Secretary and Treasurer
(Principal Financial Officer)

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350, is not being "filed" by the Company as part of the Report or as a separate disclosure document and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Report), irrespective of any general incorporation language contained in such filing.