

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2019

OR

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

Commission File Number: 001-38529

Verrica Pharmaceuticals Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware
(State or other jurisdiction of
incorporation or organization)
10 North High Street, Suite 200
West Chester, PA
(Address of principal executive offices)

46-3137900
(I.R.S. Employer
Identification No.)

19380
(Zip Code)

Registrant's telephone number, including area code: (484) 453-3300

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

Title of Each Class
Common Stock, \$0.0001 par value

Trading Symbol
VRCA

Name of Each Exchange on which Registered
The Nasdaq Stock Market, LLC

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

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

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

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

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

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

Large accelerated filer
Non-accelerated filer

Accelerated filer
Small 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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

The aggregate market value of Verrica Pharmaceuticals Inc.'s voting and non-voting common equity held by non-affiliates as of June 28, 2019 (the last business day of the registrant's most recently completed second fiscal quarter) based on the closing sale price of \$11.62 as reported on the Nasdaq Global Market on that date was approximately \$181.4 million.

As of March 6, 2020, the registrant had 25,814,493 shares of common stock, \$0.0001 par value per share, outstanding.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K (this “Annual Report”) contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, that involve substantial risks and uncertainties. The forward-looking statements are contained principally in Part I, Item 1. “Business,” Part I, Item 1A. “Risk Factors,” and Part II, Item 7. “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” but are also contained elsewhere in this Annual Report. In some cases, you can identify forward-looking statements by the words “may,” “might,” “will,” “could,” “would,” “should,” “expect,” “intend,” “plan,” “objective,” “anticipate,” “believe,” “estimate,” “predict,” “project,” “potential,” “continue” and “ongoing,” or the negative of these terms, or other comparable terminology intended to identify statements about the future. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. Although we believe that we have a reasonable basis for each forward-looking statement contained in this Annual Report, we caution you that these statements are based on a combination of facts and factors currently known by us and our expectations of the future, about which we cannot be certain. Forward-looking statements include statements about:

- our plans to develop and commercialize our product candidates;
- the timing of our planned clinical trials for VP-102 and our other product candidates;
- the timing of and our ability to obtain and maintain regulatory approvals for VP-102 for the treatment of molluscum and our other product candidates;
- the clinical utility of our product candidates;
- our commercialization, marketing and manufacturing capabilities and strategy;
- our expectations about the willingness of healthcare professionals to use VP-102;
- our expectations about third-party payors to reimburse or patients to pay for VP-102;
- our intellectual property position;
- our plans to in-license, acquire, develop and commercialize additional product candidates for other dermatological conditions to build a fully integrated dermatology company;
- our competitive position and the development of and projections relating to our competitors or our industry;
- our ability to identify, recruit and retain key personnel;
- the impact of laws and regulations;
- our expectations regarding the time during which we will be an emerging growth company under the JOBS Act;
- our plans to identify additional product candidates with significant commercial potential that are consistent with our commercial objectives; and
- our estimates regarding future revenue, expenses and needs for additional financing.

You should refer to Item 1A. “Risk Factors” in this Annual Report for a discussion of important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. As a result of these factors, we cannot assure you that the forward-looking statements in this Annual Report will prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all. The forward-looking statements in this Annual Report represent our views as of the date of this Annual Report. We anticipate that subsequent events and developments may cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Annual Report.

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ITEM 1. BUSINESS**Overview**

We are a dermatology therapeutics company committed to the development and commercialization of novel treatments that provide meaningful benefit for people living with skin diseases. Our lead product candidate, VP-102, is a proprietary drug-device combination of our novel topical solution of cantharidin, a widely recognized, naturally sourced agent to treat topical dermatological conditions, administered through our single-use precision applicator. We are initially developing VP-102 for the treatment of molluscum contagiosum, or molluscum, a highly contagious and primarily pediatric viral skin disease, and common warts. There are currently no products approved by the U.S. Food and Drug Administration, or FDA, nor is there an established standard of care for either of these diseases, resulting in significant undertreated populations in two of the largest unmet needs in dermatology. In addition to patent protection we are seeking, VP-102 has the potential to be the first FDA-approved product for molluscum and for its active pharmaceutical ingredient, or API, to be characterized as a new chemical entity, or NCE, with the five years of non-patent regulatory exclusivity associated with that designation. We also believe VP-102 has the potential to qualify for pediatric exclusivity in common warts, which would provide for an additional six months of non-patent exclusivity.

In January 2019, we reported positive top-line results from our Phase 3 CAMP-1 and CAMP-2 pivotal trials with VP-102 for the treatment of molluscum. Both clinical trials evaluated the safety and efficacy of VP-102 compared to placebo. In each trial, we observed that a clinically and statistically significant proportion of subjects treated with VP-102 achieved complete clearance of all treatable molluscum lesions compared to subjects treated with placebo. VP-102 was well-tolerated in both trials, with no serious adverse events reported in VP-102 treated subjects. Based on the results from these trials, we submitted a new drug application, or NDA, to the FDA for VP-102 for the treatment of molluscum in September 2019. In November 2019, we received notice that the FDA accepted the NDA for filing, with a Prescription Drug User Fee Act, or PDUFA, goal date of July 13, 2020. CAMP-1 was conducted under a special protocol assessment, or SPA, agreement with the FDA. In June 2019, we announced positive topline results from our COVE-1 Phase 2 open label clinical trial of VP-102 for the treatment of verruca vulgaris, or common warts. Based on the results of the COVE-1 trial, and following an End-of-Phase 2 meeting with the FDA we plan to initiate two Phase 3 clinical trials in the first half of 2020.

In addition, we are also developing VP-102 for the treatment of external genital warts. We initiated a Phase 2 clinical trial evaluating the optimal dose regimen, efficacy, safety and tolerability of VP-102 in patients with external genital warts in June 2019. We expect to report topline data results from this trial in the second half of 2020. In addition, we are conducting necessary preclinical activities for VP-103, our second cantharidin-based product candidate, and plan to initiate a Phase 2 clinical trial in subjects with plantar warts in mid-2020. We retain exclusive, royalty-free rights to our product candidates across all indications.

Molluscum is a highly contagious common skin disease caused by a pox virus that produces multiple raised flesh-colored papules, or skin lesions. Molluscum typically presents with 10 to 30 lesions and can present with over 100 lesions. If left untreated, molluscum lesions persist for an average of 13 months, with some cases remaining unresolved for more than two years. The symptoms of molluscum tend to cause considerable anxiety, and parents frequently seek treatment due to its highly contagious nature and physical appearance.

We estimate approximately 6 million people in the United States have molluscum. Of the 6 million people with molluscum, we estimate that approximately 1 million are diagnosed annually. Molluscum has a 5% to 11% prevalence rate in children with the greatest incidence in individuals aged one to 14 years old. Accordingly, we estimate this represents a total addressable U.S. market of over \$1 billion. We believe that the molluscum prevalence rate in the European Union is at least as high as in the United States.

Compounded cantharidin has been used for many years by dermatologists to treat molluscum, but it has many limitations. Those limitations include that it is not FDA-approved, could have highly variable purity, is not readily available and is often not produced in accordance with good manufacturing practices, or GMP. In addition, the

formulation and administration of compounded cantharidin is not standardized and is poorly controlled. Other existing therapies, such as cryotherapy, curettage and laser surgery are also used, but are often painful and may lead to scarring. The potential for scarring and pain makes many of these treatments particularly unsuitable for children. As a result, a significant need exists for a clinically proven and FDA-approved treatment for molluscum.

We have designed VP-102 to address the significant limitations of current compounded cantharidin formulations for the treatment of molluscum, including with respect to safety, purity, efficacy, stability and ease of administration. VP-102 contains the first GMP-controlled formulation of cantharidin with a defined pharmaceutical batch process and an API that is greater than 99% pure. We believe VP-102 addresses the shortcomings associated with current therapies, including pain and discomfort, potential scarring and inconsistent outcomes, and has the potential to be the first FDA-approved product for the treatment of molluscum.

We are also developing VP-102 for the treatment of common warts. Common warts typically result in two to five lesions. We estimate approximately 22 million people in the United States have common warts and the total addressable U.S. market to be over \$1 billion with an estimated 2 million patient visits for common warts each year. In the United States, approximately 50% of the patients who seek treatment for common warts are children, and approximately 25% of common warts patients are treated by pediatricians. We believe that the common wart patient opportunity in the European Union is at least as large as that in the United States. There are currently no FDA-approved products indicated for the treatment of common warts. While common warts can be treated with slow acting, over-the-counter products, the warts tend to be highly refractory and a cause for multiple consultations. We believe that cantharidin's role as a widely recognized and effective blistering agent for the treatment of skin lesions, coupled with VP-102's safety and efficacy data in clinical trials for the treatment of molluscum and convenient ease of administration, will allow VP-102 to address many of the shortcomings associated with current therapies. In June 2019, we announced positive topline results from our COVE-1 Phase 2 open label clinical trial of VP-102 for the treatment of common warts. COVE-1 included two cohorts that evaluated the safety and efficacy of VP-102 in subjects with up to six warts. In both cohorts, VP-102 achieved positive results in both the primary endpoint of complete clearance of all treatable warts at Day 84 and the secondary endpoint of the percentage reduction of warts, VP-102 was well-tolerated with no serious adverse events reported. Based on the results of the COVE-1 trial and following an End-of-Phase 2 meeting with the FDA, we plan to initiate two Phase 3 clinical trials in the first half of 2020. Subjects in the Phase 3 trials will also be evaluated in a long-term extension to evaluate safety and efficacy of treatment for up to one year.

In addition, we are also developing VP-102 for the treatment of external genital warts. External genital warts are a viral skin disease caused by the human papilloma virus, or HPV, which forms lesions on the surface of the skin. An estimated 17% of the approximately 4.1 million patient visits for all types of warts are for the treatment of external genital warts. We initiated a Phase 2 clinical trial evaluating the optimal dose regimen, efficacy, safety and tolerability of VP-102 in patients with external genital warts in June 2019. We expect to report topline data results from this trial in the second half of 2020.

We also intend to develop our second cantharidin-based product candidate, VP-103, for the treatment of plantar warts. An estimated one-third of the approximately 4.1 million annual patient visits for all types of warts are for the treatment of plantar warts, which are warts located on the bottom of the foot. We are conducting necessary preclinical activities for VP-103 and plan to initiate a Phase 2 clinical trial in subjects with plantar warts in mid-2020. We believe we have the opportunity to expand our proprietary cantharidin formulations for the treatment of additional dermatological conditions with high unmet needs.

We believe the current medical dermatology landscape provides an opportunity to establish ourselves as a leader in the space. With a more concentrated prescribing base of dermatologists versus other medical specialties, our management's proven track record and experience in new product launches, and the significant clinical benefits described above, we believe a targeted sales and marketing organization of approximately 50 to 60 sales representatives should enable us to capture market share swiftly in the United States, particularly in our current indications of focus.

Our Pipeline

The following table summarizes our product candidates. We retain exclusive, royalty-free rights for all our product candidates.

	PRECLINICAL	PHASE 1	PHASE 2	PHASE 3	NDA ACCEPTANCE	NEXT EXPECTED MILESTONE
VCANTH						
Molluscum Contagiosum	→	→	→	→	→	PDUFA Goal Date: July 13, 2020
VP-102						
Common Warts	→	→	→	→	→	Initiate pivotal Phase 3 trials in 1H 2020
VP-103						
External Genital Warts	→	→	→	→	→	Topline Phase 2 results in 2H 2020
Plantar Warts	→	→	→	→	→	Initiate Phase 2 trial Mid 2020

VP-102 for the Treatment of Molluscum

We are developing VP-102 as a proprietary drug-device combination of a novel 0.7% w/v topical solution of cantharidin administered through our single-use precision applicator. VP-102 has the potential to be the first FDA-approved treatment for molluscum and we believe it will address many of the shortcomings associated with current therapies, including pain and discomfort, scarring and lack of effectiveness.

We have designed VP-102 to address the significant limitations of current compounded cantharidin formulations for the treatment of molluscum, with respect to safety, purity, efficacy, stability and ease of administration. VP-102 contains the first GMP-controlled formulation of cantharidin with a defined pharmaceutical batch process and an API that is greater than 99% pure.

Our proprietary single-use applicator allows for precise application to each lesion. Our applicator contains a sealed glass ampule providing long-term room temperature stability without the changes in concentration due to evaporation seen in compounded formulations.

Clinical Development for Molluscum

In January 2019, we announced positive topline results from our Phase 3 CAMP-1 and CAMP-2 pivotal trials with VP-102 for the treatment of molluscum. Based on the results from these trials, we submitted an NDA to the FDA for VP-102 for the treatment of molluscum in September 2019. In November 2019, we received notice that the FDA accepted the NDA for filing, with a PDUFA goal date of July 13, 2020.

Below is a summary of our clinical development for the indication of molluscum.

Trial and Status	Formulation and Application Method	Trial Design	Trial Objectives
<p>Phase 3 Clinical Trials (CAMP-1 and CAMP-2) (n=266 and 262, respectively)</p> <p>Top-line results reported in January 2019</p>	<p>VP-102</p>	<ul style="list-style-type: none"> • Randomized, double-blinded, multicenter, placebo-controlled • Safety and efficacy evaluated every 21 days for up to 4 applications 	<ul style="list-style-type: none"> • To evaluate the efficacy of dermal application of VP-102 relative to placebo for complete clearance at Day 84 • To assess the safety and tolerability of VP-102
<p>Phase 2 Innovate Trial (n=32)</p> <p>Results reported in September 2018</p>	<p>VP-102</p>	<ul style="list-style-type: none"> • Open-label, single- center • 24-hour treatment • Blood draws in subjects with more than 21 lesions for evaluating PK • Safety and efficacy evaluated every 21 days for up to four applications • Impact of quality of life assessed via the CDLQI • Duration: 12 weeks 	<ul style="list-style-type: none"> • To determine any possible systemic exposure from a single 24-hour application of VP-102 • To confirm safety and efficacy with applicator • To assess impact on quality of life
<p>Phase 2 Pilot Trial (n=30)</p> <p>Completed in September 2017</p>	<p>Our proprietary formulation of cantharidin used in VP-102, applied with the wooden stick part of a cotton-tipped swab</p>	<ul style="list-style-type: none"> • Open-label, single- center • Six hour and 24- hour treatment cohorts • Safety and efficacy evaluated every 21 days for up to four applications • Impact of quality of life assessed via the CDLQI • Duration: 12 weeks 	<ul style="list-style-type: none"> • To evaluate safety and efficacy and determine optimal treatment duration • To assess impact on quality of life

Phase 3 Clinical Trials—CAMP-1 and CAMP-2

In January 2019, we announced positive topline results from our Phase 3 CAMP-1 and CAMP-2 pivotal trials with VP-102 for the treatment of molluscum. The two trials, identical in design, were randomized, double-blind, multicenter, placebo-controlled trials of VP-102 for the treatment of molluscum. CAMP-1 was conducted under a SPA with the FDA. The primary objective of the trials was to evaluate the efficacy of dermal application of VP-102 relative to placebo in subjects 2 years of age and older with molluscum, when treated once every 21 days for up to four applications, by assessing the proportion of subjects achieving complete clearance of all treatable molluscum lesions at Day 84 (Week 12/End of Study visit). Secondary endpoints included the proportion of subjects with complete clearance at study visits on Days 21 (Week 3), 42 (Week 6) and 63 (Week 9).

CAMP-1 and CAMP-2 enrolled 528 subjects in total and were conducted at 31 centers in the United States. Results from CAMP-1 and CAMP-2 showed 46% and 54% of subjects treated with VP-102, respectively, achieved complete clearance of all treatable molluscum lesions at Day 84 versus 18% and 13% of subjects in the placebo groups ($p < 0.0001$). By Day 84, VP-102 treated subjects had a 69% and 83% mean reduction in the number of molluscum lesions, a pre-specified endpoint, in CAMP-1 and CAMP-2, respectively, compared to a 20% increase and a 19% reduction for subjects on placebo.

Consistent with the results from the Phase 2 clinical trials, VP-102 was also well-tolerated in the Phase 3 trials, with side effects that were primarily mild to moderate. The most frequently reported adverse events were application site reactions that are well-known, reversible side effects related to the mechanism of action of cantharidin, a blistering agent, which is the active ingredient in VP-102. There were no treatment-related serious adverse events reported in CAMP-1 or CAMP-2.

Based on the results of these trials, we submitted an NDA to the FDA for VP-102 for the treatment of molluscum. In November 2019, we received notice that the FDA accepted the NDA for filing, with a PDUFA goal date of July 13, 2020.

Phase 2 Clinical Trial—Innovate Trial

In September 2018, we announced results from an open-label Phase 2 clinical trial, which we refer to as the Innovate trial. The primary objective of the Innovate trial was to determine any potential systemic exposure from a single 24-hour dermal application of VP-102 when applied to molluscum lesions on pediatric subjects 2 years of age and older. The trial enrolled 33 subjects at a single center into either an exposure group ($n=17$) or a standard group ($n=16$) with 32 subjects completing the trial. Following an initial treatment of all subjects with VP-102 and a 21-day evaluation period, treatment continued once every 21 days for three additional applications allowing further evaluation of safety, efficacy and impact on quality of life.

Systemic exposure was negligible, as indicated by plasma drug levels that were below the limits of quantification in 65 of 66 samples which were taken either pre-dose or post-dose at timepoints of 2, 6 and 24 hours after treatment with VP-102. One sample was above the limit of quantification at 2 hours after VP-102 treatment, but systemic exposure was not detectable at the 6-hour and 24-hour timepoints in this subject. At the end of trial visit (Week 12), there was a mean reduction in molluscum lesions of 90% compared to baseline across all subjects enrolled in the Innovate trial and 50% of subjects who completed the trial experienced complete clearance of their treatable molluscum lesions. VP-102 was well-tolerated and no serious adverse events were reported.

Phase 2 Clinical Trial—Pilot Trial

In 2016, we conducted an open-label, Phase 2 clinical trial, which we refer to as the Pilot Trial, to evaluate the safety and efficacy of our proprietary cantharidin formulation and to determine the optimal treatment regimen and estimate power for the pivotal trials. The trial enrolled 30 subjects at a single center and was completed in September 2017. The trial utilized a single-use screw-top vial of our proprietary 0.7% cantharidin formulation, with application via the wooden part of a cotton-tipped swab, which is the method of application historically used with compounded cantharidin. The subjects were divided into two cohorts, with the first cohort instructed to wash off the treatment after a six-hour exposure and the second cohort washing off the product after 24-hour exposure. Subjects were treated every three weeks for up to four treatments. Safety and efficacy measures were evaluated every three

weeks. Primary efficacy measures were the percentage of subjects who achieved complete clearance by Day 42 (visit 3) and Day 84 (visit 5). Secondary efficacy measures included a quality of life assessment, as measured by the Children's Dermatology Life Quality Index, or CDLQI, score, and the percentage of subjects who achieved clearance of at least 90% of their lesions with comparison to the efficacy data obtained with compounded cantharidin. The CDLQI scale is a validated tool for measuring the impact of skin disease on quality of life for subjects five to sixteen years of age and ranges from a score of 0 to 30. Lower CDLQI scores indicate lower impairment of a patient's quality of life.

In the Pilot Trial, our proprietary cantharidin formulation was applied to over 1,700 molluscum lesions in 30 subjects, and was observed to be well tolerated, with no serious adverse events or unexpected treatment related adverse events recorded. The trial's first cohort investigated a six-hour treatment duration. Fourteen subjects were enrolled in this cohort and 13 subjects completed the trial. Of these 13 subjects, six showed complete clearance on or before Day 84 (visit 5) (46% complete clearance rate). The second cohort investigated a 24-hour treatment duration. Sixteen subjects were enrolled in this cohort and 12 completed the trial. Of these 12 subjects, five showed complete clearance on or before Day 84 (visit 5) (42% complete clearance rate).

VP-102 for the Treatment of Common Warts

We are also developing VP-102 for the treatment of common warts. Published studies and clinical use provide support for cantharidin as a safe and effective treatment for common warts. We believe that VP-102 has the potential to address many of the shortcomings associated with current therapies, including pain and discomfort, scarring, and lack of effectiveness. In addition, we believe VP-102's convenient ease of administration will differentiate it from existing alternative unapproved therapies.

We conducted an open-label COVE-1 Phase 2 clinical trial to evaluate the efficacy, safety and tolerability of VP-102 in subjects with up to six common warts. In this study, there were two cohorts. Cohort 1 was conducted at a single site with 21 subjects age 2 years and older receiving up to 4 treatments with VP-102 at least 14 days between treatments with longer treatment intervals allowed at the discretion of the investigator depending on a specific subject's clinical response. Cohort 2 was conducted at four sites with 35 subjects age 12 years and older receiving up to 4 treatments with VP-102 every 21 days. Paring of warts, a technique commonly used by dermatologists to prepare the wart for treatment, was allowed in Cohort 2 to remove any adherent thick scale from a wart prior to application of study drug. The primary objective of both cohorts was to evaluate the efficacy of up to 4 dermal applications of VP-102 when applied to common warts by assessing the proportion of subjects achieving complete clearance of all treatable warts at Day 84. Complete clearance of warts at Day 84 for Cohort 1 was observed in 19.0% of subjects, and for Cohort 2 complete clearance was observed in 51.4% of subjects. By Day 84, there was a mean decrease from baseline in the number of warts of 31.2% for Cohort 1 subjects and 53.8% for Cohort 2 subjects. In both cohorts, the most frequently reported adverse events were anticipated application site skin reactions that were primarily mild or moderate in intensity, including vesicles, pain, erythema, pruritus, scabbing, dryness, edema, and post-inflammatory pigmentation changes. There were no deaths or serious adverse events reported, and there were no adverse events leading to trial drug discontinuation.

Trial and Status	Formulation	Trial Design	Trial Objectives
<p>Phase 2 COVE-1 Trial</p> <p>Results reported in June 2019</p>	VP-102	<ul style="list-style-type: none"> • Open-label, multi- center • 2 cohorts • Dosing regimens of 14 (Cohort 1) and 21 (Cohort 2) days evaluated for up to 4 applications • 24-hour treatment • Wart paring allowed in the second cohort 	<ul style="list-style-type: none"> • To evaluate safety and efficacy over four treatments

Based on the results of the COVE-1 trial, and following an End-of-Phase 2 meeting with the FDA, we plan to initiate two Phase 3 clinical trials in the first half of 2020. Subjects in the Phase 3 trials will also be evaluated in a long-term extension phase to evaluate safety and efficacy of treatment for up to one year.

VP-102 for the Treatment of External Genital Warts

We are also developing VP-102 for the treatment of external genital warts. External genital warts are a viral skin disease caused by HPV which forms lesions on the surface of the skin. An estimated 17% of the approximately 4.1 million patient visits for all types of warts are for the treatment of external genital warts. We believe VP-102 may have the potential to offer a safe and effective treatment for external genital warts because of the shared characteristics with molluscum. We initiated a Phase 2 clinical trial evaluating the optimal dose regimen, efficacy, safety and tolerability of VP-102 in patients with external genital warts in June 2019, as summarized in the table below. We expect to report topline data results from this trial in the second half of 2020.

Trial and Status	Formulation	Trial Design	Trial Objectives
<p>Phase 2 CARE-1 Trial</p> <p>Ongoing</p>	VP-102	<ul style="list-style-type: none"> • Randomized, placebo-controlled, multi-center • Two-part (n=108 total) • Dosing regimens of every 21 days evaluated for up to 4 applications • Duration of skin exposure was evaluated for 2, 6 and 24-hours treatment 	<ul style="list-style-type: none"> • To evaluate safety and efficacy over four treatments

VP-103 for the Treatment of Plantar Warts

We also intend to develop our second cantharidin-based product candidate, VP-103, for the treatment of plantar warts, which are warts located on the bottom of the foot. An estimated one-third of the approximately 4.1

million patient visits for all types of warts are for the treatment of plantar warts. To date, plantar warts have been difficult to treat, as they are refractory and available treatments often lead to both pain and scarring. We are conducting necessary preclinical activities for VP-103 and plan to initiate a Phase 2 clinical trial in subjects with plantar warts in mid-2020.

Manufacturing

We do not have any manufacturing facilities. We have been relying on third parties for the manufacture of our product candidates for preclinical studies and clinical trials and will continue to rely on these third parties in the near term for the commercial manufacture of our drug products if they are approved during the initial commercial phase. Manufacturing of the API for our product candidates requires a raw material that is derived from a natural source.

To date, we have obtained naturally-sourced cantharidin directly or indirectly from suppliers based in the People's Republic of China. On July 16, 2018, we entered into a Supply Agreement, or the Supply Agreement, with Funing County Development Brucea Javanica Professional Cooperatives, or the Supplier, pursuant to which the Supplier has agreed to supply naturally-sourced cantharidin to us for a specified fixed price. Pursuant to the Supply Agreement, the Supplier has agreed that it will not supply cantharidin, any beetles or other raw material from which cantharidin is derived to any other customer in North America, subject to specified minimum annual purchase orders and forecasts.

Pursuant to the Supply Agreement, we have provided the Supplier with purchase orders in 2018 and 2019 and may submit additional purchase orders from time to time, so long as the purchase orders are at least six months prior to the proposed delivery date. As of January 31, 2020, we possess total inventories in a combination of raw cantharidin and converted API adequate to produce over 15 million finished drug product applicators in the United States, with additional raw cantharidin already manufactured awaiting shipment.

The term of the Supply Agreement is five years and thereafter will be renewed automatically for 12-month periods, unless terminated by either party at least 12 months prior to the end of the applicable term. In addition, either party has the right to terminate the Supply Agreement under certain circumstances, including (i) upon a material breach of the Supply Agreement if the breaching party has failed to remedy the breach within 45 days or if the breach is not capable of remedy within 45 days or (ii) the other party becomes insolvent or goes into liquidation.

Our contract manufacturers and primary packaging vendor are FDA-registered establishments and have a history of supplying products to the pharmaceutical industry.

We have demonstrated capability to successfully manufacture both the API as well as the bulk drug intermediate at our proposed commercial batch sizes. We are confident of the ability to scale the applicator final assembly process to commercial scale as this process is well understood. Validation activities for the commercial manufacturing and assembly processes have commenced and, based upon current project timelines, are expected to be completed in 2020. Given the nature of both the API as well as several of the excipients, special handling will be required to minimize risks to personnel during processing. Analytical testing methods for both the API as well as the finished drug product have been developed and satisfactorily qualified to enable release of clinical materials for human use. It is expected that these methods will prove appropriate for release of commercial product with minimal additional effort.

Our proprietary individual applicator and its parts are fabricated using common methods and materials and we currently plan to have our applicators built using semi-custom equipment performing well established automated assembly techniques. The proposed commercial applicator assembly has successfully undergone both engineering testing as well as evaluation in the clinical setting.

Commercialization

We intend to commercialize VP-102, or any other product candidates that we may successfully develop, in the United States by building a specialized sales organization focused on pediatric dermatologists, dermatologists and select pediatricians. We believe a scientifically oriented, customer-focused team of approximately 50 to 60 sales representatives would allow us to reach the approximately 400 pediatric dermatologists and 5,000 to 6,000 dermatologists in the United States with the highest potential for using VP-102. In the future, we may develop and commercialize VP-102 for additional geographic regions, independently or with a strategic partner. We intend to seek

drug product reimbursement for VP-102. Based on a survey of 40 physicians that we commissioned, 87% of physicians reported they would use VP-102 if the cost of the drug were covered. Furthermore, in April 2018, we commissioned a market research study, which surveyed 15 payor organizations representing over 105 million lives. The surveyed payors recognized that there is a significant unmet need for molluscum and a current lack of an effective treatment. Given the unmet need and the results of clinical trials of VP-102 to date, the surveyed payors anticipate the majority of patients would have access to VP-102, if approved, with minimal to no restrictions. We believe dermatologists tend to be particularly focused on the safety of pharmaceutical products because, while skin diseases can have profound effects on patients' quality of life, few are life-threatening. As a result, we believe that dermatologists, as well as their patients, often prefer to use topical treatments when possible to limit the risk of systemic side effects. Dermatologists also tend to place a high level of emphasis on products that are easy to use because they often manage high volumes of patients. We believe this also contributes to a general preference for topical treatments. Finally, in our experience, dermatologists tend to engage with sales and medical affairs personnel from the pharmaceutical industry regarding the scientific evidence supporting dermatology products and the challenges experienced by physicians and patients in the use of these products. Dermatologists often rely on trusted relationships with scientifically oriented, customer-focused sales representatives who can provide them with the necessary information to support their use of appropriate treatments.

Competition

The pharmaceutical industry is subject to rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. We face potential competition from many different sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, compounding facilities, academic institutions, governmental agencies and public and private research institutions. Any product candidates that we successfully develop and commercialize will compete with existing treatments and new treatments that may become available in the future.

The key competitive factors affecting the success of VP-102, if approved, are likely to be its efficacy, safety, convenience, pricing and stability. With respect to VP-102 for the treatment of molluscum, we will be primarily competing with therapies such as other topical products, curettage, cryotherapy, laser surgery, natural oils, off-label drugs, natural remedies and compounded unstandardized cantharidin. Under Section 503A of the FDCA, if VP-102 is approved, compounded topical cantharidin products with the same, similar or an easily substitutable dosage strength would be considered essentially copies of VP-102 and may not be compounded regularly or in inordinate amounts, subject to certain limited individual exceptions. These exceptions include if there is a difference between the compounded product and VP-102 that is made for an individual patient, and a prescribing practitioner determines produces a significant difference for that patient. In addition, pursuant to Section 503B of the FDCA, once VP-102 is approved, compounding facilities registered as outsourcing facilities would not be able to compound cantharidin products, unless there is a difference from VP-102 that produces a clinical difference for an individual patient, as determined by a prescribing practitioner. With respect to VP-102 for common warts and VP-103 for plantar warts, we will primarily be competing with over-the-counter products, cryotherapy, curettage, laser surgery, or other off-label therapies. There are currently no FDA-approved prescription pharmaceutical therapies for the treatment of molluscum, common warts, or plantar warts. With respect to VP-102 for external genital warts, we will be competing with cryosurgery, laser surgery, and topical destructive therapies such as trichloroacetic acid. There are also several FDA-approved prescription pharmaceutical therapies for external genital warts including imiquimod, podofilox, and sinecatechins. In addition, external genital warts are caused by HPV and may be prevented or treated by HPV vaccines that are FDA-approved.

We are aware of several other product candidates in earlier stages of development as potential treatments for the indications we intend to target. Veloce Biopharma, Leo Pharma and Novan have initiated clinical trials with different programs in molluscum. There are a number of other companies developing products for common wart, including Aclaris Therapeutics. Aclaris has conducted late-stage clinical trials and is pursuing FDA approval for their common wart product candidate. In addition, other drugs have been used off label as treatments for molluscum and common warts.

Intellectual Property

Our commercial success depends in part on our ability to obtain and maintain proprietary protection for VP-102 and our proprietary applicator and any of our future product candidates, medical devices, synthetic

methodologies, novel discoveries, drug development technologies and know-how; to operate without infringing on or otherwise violating the proprietary rights of others; and to prevent others from infringing or otherwise violating our proprietary rights. Our policy is to seek to protect our proprietary position by, among other methods, filing U.S. and foreign patent applications related to our product candidate and other proprietary technologies, inventions, and improvements that are important to the development and implementation of our business. We also rely on trademarks, trade secrets, know-how, continuing technological innovation, and potential in-licensing opportunities to develop and maintain our proprietary position.

While we seek broad coverage under our pending patent applications, our granted patent and pending patent applications do not include any claims drawn to the active pharmaceutical agent cantharidin *per se* or for the broad use of our API alone for the treatment of warts or molluscum. However, our granted patent and pending patent applications do claim our cantharidin preparations, cantharidin formulations, applicator devices, dosing regimens, methods of preparation including methods of synthesis, and methods of use. Despite these patent filings, there is always a risk that modification of the specific formulation, manufacturing process, method of application, and/or specific method of use may allow a competitor to avoid infringement claims. In addition, patents, if granted, will expire, and we cannot provide any assurance that any additional patents will issue from our pending or any future patent applications.

We currently have one granted Australian patent covering our formulation of VP-102, applicator devices and systems comprising the formulation and methods of using the same. Additionally, as of February 11, 2020, we have nationalized five international patent applications for utility patents, four of which have been nationalized in the United States, Australia, Brazil, Canada, China, Europe, Israel, India, Japan, South Korea, and Mexico, and one of which has been nationalized in the United States, Europe, and Japan. Two of these European patent applications have been registered in Hong Kong. In addition, we have one pending international patent applications and one patent application for a United States design patent. These patent applications relate to VP-102, our proprietary applicator, and other inventions related to VP-102. Our patent applications related to VP-102 and our proprietary applicator include proposed claims relating to (i) methods for the synthesis of cantharidin, (ii) our specific formulations and preparations of VP-102, (iii) methods for purifying cantharidin, (iv) methods for detecting impurities in cantharidin, (v) the design of our proprietary applicator, including both the general design and specific design elements, (vi) claims related to safety features included in the VP-102 formulation, including colorants and bittering agents, and (vii) the method of administration of VP-102 for the treatment of skin lesions. Excluding any patent term adjustment and patent term extension, any utility patents to issue from these patent applications are projected to expire between 2034 and 2039. The design patent to issue from the design patent application will expire fifteen years from the date of issuance. We cannot provide any assurance as to whether any additional patents will issue from these patent applications or, if any patents do issue, the scope of the claims that will be allowed.

Individual patents extend for varying periods depending on the date of filing of the patent application or the date of patent issuance and the legal term of patents in the countries, in which they are obtained. Generally, patents issued from regularly filed applications in the United States are granted for a term of 20 years from the earliest effective non-provisional filing date. In addition, in certain instances, a patent term can be adjusted to recapture a portion of the United States Patent and Trademark Office, or the USPTO, delay in issuing the patent, and extended to recapture a portion of the patent term effectively lost as a result of the FDA regulatory review period of the drug covered by the patent. However, as to the FDA component, the restoration period cannot be longer than five years, the total patent term including the restoration period must not exceed 14 years following FDA approval of the drug, and the extension may only apply to one patent that covers the approved drug (and to only those patent claims covering the approved drug or a method for using it). There can be no assurance that any such patent term adjustment or extension will be obtained. The duration of foreign patents varies in accordance with provisions of applicable local law, but typically is also 20 years from the earliest effective non-provisional filing date. However, the actual protection afforded by a patent varies on a product-by-product basis, from country to country and depends upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory-related extensions, the availability of legal remedies in a particular country, and the validity and enforceability of the patent.

Furthermore, we rely upon trade secrets, know-how, and continuing technological innovation to develop and maintain our competitive position. We seek to protect our proprietary information, in part, using confidentiality agreements with our commercial partners, collaborators, employees, and consultants and invention assignment agreements with our employees. We also have confidentiality agreements or invention assignment agreements with

our commercial partners and selected consultants. These agreements are designed to protect our proprietary information and, in the case of the invention assignment agreements, to grant us ownership of technologies that are developed through a relationship with a third party. These agreements may be breached, and we may not have adequate remedies for any such breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors. To the extent that our commercial partners, collaborators, employees, and consultants use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

Government Regulation and Product Approval

Government authorities in the United States, at the federal, state and local levels, and in other countries, extensively regulate, among other things, the research, development, testing, manufacture, packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, marketing, import and export of pharmaceutical products, such as those we are developing. We, along with third-party contractors, will be required to navigate the various chemistry, manufacturing and controls, preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which we wish to conduct studies or seek approval of our product candidates. The processes for obtaining regulatory approvals in the United States and in foreign countries, along with subsequent compliance with applicable statutes and regulations, require the expenditure of substantial time and financial resources.

United States Government Regulation

In the United States, the FDA regulates drugs under the FDCA and its implementing regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable United States requirements at any time during the drug development process, approval process or after approval, may subject an applicant to a variety of administrative or judicial sanctions, such as the FDA's refusal to approve pending new drug applications, or NDAs, withdrawal of an approval, imposition of a clinical hold, issuance of warning or untitled letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement or civil or criminal penalties.

The process required by the FDA before a drug may be marketed in the United States generally involves:

- completion of preclinical laboratory tests, animal studies and formulation studies in compliance with the FDA's good laboratory practice, or GLP, regulations;
- submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- approval by an independent institutional review board, or IRB, at each clinical site before each clinical trial may be initiated;
- performance of adequate and well-controlled clinical trials in accordance with good clinical practice, or GCP, requirements to establish the safety and efficacy of the proposed drug for each indication;
- submission to the FDA of an NDA;
- satisfactory completion of an FDA advisory committee review, if applicable;
- satisfactory completion of chemistry, manufacturing and controls testing, an FDA inspection of the manufacturing facility or facilities at which the product is produced to assess compliance with cGMP requirements, and to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity;
- satisfactory completion of an FDA inspection of selected clinical sites to assure compliance with GCPs and the integrity of the clinical data;
- payment of user fees; and
- FDA review and approval of the NDA.

VP-102 is designed to be administered to patients via a proprietary applicator by a healthcare professional. In the United States, products composed of components that would normally be regulated by different centers at the FDA are known as combination products. Typically, the FDA's Office of Combination Products assigns a combination product to a specific Agency center as the lead reviewer. The FDA determines which center will lead a product's review based upon the product's primary mode of action. Depending on the type of combination product, its approval, clearance or licensure may usually be obtained through the submission of a single marketing application. We anticipate that VP-102 will be regulated as a drug, and that the FDA will permit a single regulatory submission seeking approval of VP-102 with the applicator in each indication for which we seek approval. Even when a single marketing application is required for a combination product, such as an NDA for a combination pharmaceutical and device product, both the FDA's Center for Drug Evaluation and Research and the FDA's Center for Devices and Radiological Health may participate in the review. An applicant will also need to discuss with the Agency how to apply certain premarket requirements and post-marketing regulatory requirements, including conduct of clinical trials, adverse event reporting and good manufacturing practices, to their combination product.

Preclinical Studies

Preclinical studies include laboratory evaluation of product chemistry, toxicity and formulation, as well as animal studies to assess potential safety and efficacy. An IND sponsor must submit the results of the nonclinical tests, together with manufacturing information, analytical data and any available clinical data or literature, among other things, to the FDA as part of an IND. Some nonclinical testing may continue even after the IND is submitted. An IND automatically becomes effective and a clinical trial proposed in the IND may begin 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions related to one or more proposed clinical trials and places the clinical trial on a clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. As a result, submission of an IND may not result in the FDA allowing clinical trials to commence.

Clinical Trials

Clinical trials involve the administration of the investigational new drug to human subjects under the supervision of qualified investigators in accordance with GCP requirements, which include the requirement that all research subjects provide their informed consent in writing for their participation in any clinical trial. Clinical trials are conducted under protocols detailing, among other things, the objectives of the trial, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA as part of the IND. In addition, an IRB at each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution, and the IRB must continue to oversee the clinical trial while it is being conducted. Information about certain clinical trials must be submitted within specific timeframes to the National Institutes of Health, or NIH, for public dissemination on their [ClinicalTrials.gov](https://www.clinicaltrials.gov) website.

Human clinical trials are typically conducted in three sequential phases, which may overlap or be combined. In Phase 1, the drug is initially introduced into healthy human subjects or patients with the target disease or condition and tested for safety, dosage tolerance, absorption, metabolism, distribution, excretion and, if possible, to gain an initial indication of its effectiveness. In Phase 2, the drug typically is administered to a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance and optimal dosage. In Phase 3, the drug is administered to an expanded patient population, generally at geographically dispersed clinical trial sites, in well-controlled clinical trials to generate enough data to statistically evaluate the safety and efficacy of the product for approval, to establish the overall risk-benefit profile of the product and to provide adequate information for the labeling of the product.

In some cases, the FDA may condition approval of an NDA for a product candidate on the sponsor's agreement to conduct additional clinical trials after NDA approval. In other cases, a sponsor may voluntarily conduct additional clinical trials post approval to gain more information about the drug. Such post approval trials are typically referred to as Phase 4 clinical trials.

Progress reports detailing the results of the clinical trials must be submitted, at least annually, to the FDA, and more frequently if serious adverse events occur. Phase 1, Phase 2 and Phase 3 clinical trials may not be completed successfully within any specified period, or at all. Furthermore, the FDA or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects 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.

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 and 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, the manufacturer 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.

Marketing Approval

Assuming successful completion of the required clinical testing, the results of the preclinical studies and clinical trials, together with detailed information relating to the product's chemistry, manufacture, controls data and proposed labeling, among other things, are submitted to the FDA as part of an NDA requesting approval to market the product for one or more indications. In most cases, the submission of an NDA is subject to a substantial application user fee. Under the Prescription Drug User Fee Act, or PDUFA, guidelines that are currently in effect, the FDA has a goal of ten months from the date of "filing" of a standard NDA for a new molecular entity to review and act on the submission. This review typically takes twelve months from the date the NDA is submitted to the FDA because the FDA has sixty days from receipt to make a decision as to whether the application has been accepted for filing.

In addition, under the Pediatric Research Equity Act of 2003 as amended and reauthorized, certain NDAs or supplements to an NDA must contain data that are adequate to assess the safety and effectiveness 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 also may require submission of a risk evaluation and mitigation strategy, or REMS, plan to ensure that the benefits of the drug outweigh its risks. The REMS plan could include medication guides, physician communication plans, assessment plans, and/or elements to assure safe use, such as restricted distribution methods, patient registries or other risk minimization tools.

The FDA conducts a preliminary review of all NDAs within the first 60 days after submission, before accepting them for filing, to determine whether they are sufficiently complete to permit substantive review. The FDA may request additional information rather than accept an NDA for filing. In this event, the application must be resubmitted with the additional information. The resubmitted application is also subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review. The FDA reviews an NDA to determine, among other things, whether the drug is safe and effective and whether the facility in which it is manufactured, processed, packaged or held meets standards designed to assure the product's continued safety, quality and purity.

The FDA may refer an application for a novel drug to an advisory committee. An advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates and provides 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.

Before approving an NDA, the FDA typically 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 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 GCP requirements.

The testing and approval process for an NDA requires substantial time, effort and financial resources, and each may take several years to complete. Data obtained from preclinical and clinical testing are not always conclusive and may be susceptible to varying interpretations, which could delay, limit or prevent regulatory approval. The FDA may not grant approval of an NDA on a timely basis, or at all.

After evaluating the NDA and all related information, including the advisory committee recommendation, if any, and inspection reports regarding the manufacturing facilities and clinical trial sites, the FDA may issue an approval letter, or, in some cases, a complete response letter. A complete response letter generally contains a statement of specific conditions that must be met in order to secure final approval of the NDA and may require additional chemistry, manufacturing and controls documentation, clinical or preclinical testing in order for the FDA to reconsider the application. Even with submission of this 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 will typically issue an approval letter. An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications.

Even if the FDA approves a product, it may limit the approved indications for use of the product, require that contraindications, warnings or precautions be included in the product labeling, require that post-approval studies, including Phase 4 clinical trials, be conducted to further assess a drug's safety after approval, require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution and use restrictions or other risk management mechanisms under a REMS, which can materially affect the potential market and profitability of the product. The FDA may prevent or limit further marketing of a product based on the results of post-marketing studies or surveillance programs. After approval, some types of changes to the approved product, such as adding new indications, manufacturing changes, and additional labeling claims, are subject to further testing requirements and FDA review and approval.

Special Protocol Assessment

A sponsor may request a Special Protocol Assessment, or (SPA), the purpose of which is to reach agreement with the FDA on the Phase 3 clinical trial protocol design and analysis that will form the primary basis of an efficacy claim. A SPA request must be made before the proposed trial begins, and all open issues must be resolved before the trial begins for a SPA to be approved. If a written agreement is reached, it will be documented in a SPA letter or the minutes of a meeting between the sponsor and the FDA and made part of the administrative record.

Even if the FDA agrees to the design, execution and analyses proposed in protocols reviewed under the SPA process, the FDA may revoke or alter its agreement under the following circumstances:

- public health concerns emerge that were unrecognized at the time of the protocol assessment, or the director of the review division determines that a substantial scientific issue essential to determining safety or efficacy has been identified after testing has begun;
- a sponsor fails to follow a protocol that was agreed upon with the FDA; or
- the relevant data, assumptions, or information provided by the sponsor in a request for SPA change, are found to be false statements or misstatements, or are found to omit relevant facts.

A documented SPA may be modified, and such modification will be deemed binding by the FDA review division, except under the circumstances described above, if the FDA and the sponsor agree in writing to modify the protocol and such modification is intended to improve the study. A SPA, however, does not guarantee that a trial will be successful.

Orange Book Listing

In seeking approval for a drug through an NDA, applicants are required to list with the FDA certain 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 FDA's Approved Drug Products with Therapeutic Equivalence Evaluations, known as the Orange Book. Any applicant who files an Abbreviated New Drug Application, or 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, for each patent listed in the Orange Book for the referenced drug, to the FDA that (1) no patent information on the drug product 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. The fourth certification described above is known as a paragraph IV certification. A notice of the paragraph IV certification must be provided to each owner of the patent that is the subject of the certification and to the holder of the approved NDA to which the ANDA refers. The applicant may also elect to submit a "section viii" 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. This section viii statement does not require notice to the patent holder or NDA owner. There might also be no relevant patent certification.

If the reference NDA holder and patent owners assert a patent challenge directed to one of the Orange Book listed patents within 45 days of the receipt of the paragraph IV certification notice, the FDA is prohibited from approving the application until the earlier of 30 months from the receipt of the paragraph IV certification expiration of the patent, settlement of the lawsuit, or a decision in the infringement case that is favorable to the applicant. Even if the 45 days expire, a patent infringement lawsuit can be brought and could delay market entry, but it would not extend the FDA-related 30-month stay of approval.

The ANDA or 505(b)(2) application also will not be approved until any applicable non-patent exclusivity listed in the Orange Book for the branded reference drug has expired. Specifically, the holder of the NDA for the listed drug may be entitled to a period of non-patent exclusivity, during which the FDA cannot approve an ANDA or 505(b)(2) application that relies on the listed drug. For example, a pharmaceutical manufacturer may obtain five years of non-patent exclusivity upon NDA approval of a New Chemical Entity, or (NCE), which is a drug that contains an active moiety that has not been approved by FDA in any other NDA. An "active moiety" is defined as the molecule or ion responsible for the drug substance's physiological or pharmacologic action. During the five-year exclusivity period, the FDA cannot accept for filing any ANDA seeking approval of a generic version of that drug or any 505(b)(2) NDA for the same active moiety and that relies on the FDA's findings regarding that drug, except that FDA may accept an application for filing after four years if the follow-on applicant makes a paragraph IV certification. This exclusivity period may be extended by an additional six months if certain requirements are met to qualify the product for pediatric exclusivity, including the receipt of a written request from the FDA that we conduct certain pediatric studies, the submission of study reports from such studies to the FDA after receipt of the written request and satisfaction of the conditions specified in the written request.

Post-Approval Requirements

Drugs manufactured or distributed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping, periodic reporting, product sampling and distribution, advertising and promotion and reporting of adverse experiences with the product. After approval, most changes to the approved product, such as adding new indications, manufacturing changes or other labeling claims, are subject to further testing requirements and prior FDA review and approval. There also are continuing annual program fee requirements for any marketed products.

Even if the FDA approves a product, it may limit the approved indications for use of the product, require that contraindications, warnings or precautions be included in the product labeling, including a boxed warning, require that post-approval studies, including Phase 4 clinical trials, be conducted to further assess a drug's safety after approval, require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution restrictions or other risk management mechanisms under a REMS, which can materially affect the potential market and profitability of the product. The FDA may prevent or limit further marketing of a product based on the results of post-marketing studies or surveillance programs.

In addition, drug manufacturers and other entities involved in the manufacture and distribution of approved drugs are required to register their establishments with the FDA and state agencies and are subject to periodic unannounced inspections by the FDA and these state agencies for compliance with cGMP requirements. Changes to the manufacturing process are strictly regulated and often require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP 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.

Once an approval is granted, the FDA may withdraw the approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market or if requested by the Sponsor. 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 mandatory revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution or other restrictions under a REMS program. Other potential FDA enforcement actions include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters or holds on post-approval clinical trials;
- refusal of the FDA to approve pending NDAs or supplements to approved NDAs, or suspension or revocation of product approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising and promotion of products. Drugs may be promoted only for the approved indications and in accordance with the provisions of the approved label, although physicians, in the practice of medicine, may prescribe approved drugs for unapproved indications. Companies may also share truthful and not misleading information that is otherwise consistent with the labeling. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability. However, physicians may, in their independent medical judgement, prescribe legally available products for off-label uses. The FDA does not regulate the behavior of physicians in their choice of treatments but the FDA does restrict manufacturer's communications on the subject of off-label use of their products.

In addition, the distribution of prescription pharmaceutical products 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.

Regulation of Compounding Pharmacies

Compounding is a practice in which a licensed pharmacist, a licensed physician, or in the case of an outsourcing facility, a person under the supervision of a licensed pharmacist, combines, mixes, or alters ingredients of a drug to create a medication tailored to the needs of an individual patient. Although we are not engaged in compounding, the active pharmaceutical ingredient in our product candidate VP-102 has historically been used in the compounding of topical pharmaceutical products, and we could be subject to competition by compounders upon approval of VP-102, subject to the requirements set forth in Sections 503A and 503B of the FDCA.

Section 503A of the FDCA exempts licensed pharmacists or licensed physicians who compound products for identified, individual patients, based on the receipt of a valid prescription order, from the FDCA's new drug approval requirements, cGMP requirements, and the requirement to label products with adequate directions for use, provided certain conditions are met. These conditions include that the pharmacist or physician does not compound regularly or in inordinate amounts any drug product that is essentially a copy of a commercially available drug product, unless there is a difference between the compounded product and the commercially available product that is made for an individual patient, and which the prescribing practitioner determines produces a significant difference for that patient. The FDA has interpreted this prohibition to mean that the compounding of a product with the same active pharmaceutical ingredient as a commercially available drug, that has the same, similar, or an easily substitutable dosage strength as the commercially available drug, and that can be used by the same route of administration as the commercially available drug, cannot be conducted under Section 503A usually, very often, or

at regular times or intervals, or more frequently or in larger quantities than needed to address unanticipated emergency circumstance, unless the limited exception described above applies.

In addition, compounding under Section 503A may only use bulk drug substances that appear on a list issued by FDA through regulations, and/or that comply with certain other conditions specified in the statute.

Unlike Section 503A, Section 503B of the FDCA allows certain entities to compound drugs that are not necessarily prepared in response to prescriptions for identified, individual patients. Such facilities must register with the FDA as outsourcing facilities, and once registered (including payment of a fee), the outsourcing facility must meet certain conditions in order to be exempt from the FDCA's approval requirements and the requirement to label products with adequate directions for use. Under Section 503B, a drug must be compounded in compliance with cGMP, by or under the direct supervision of a licensed pharmacist in order to be so exempt. The outsourcing facility must also report specific information about the products that it compounds, including a list of all of the products it compounded during the previous six months, and information about the compounded products, such as the source of the active ingredients used to compound pursuant to Section 503B(b)(2). If the outsourcing facility compounds using bulk drug substances, the bulk drug substances must either appear on a list established by the FDA of bulk drug substances for which there is a clinical need or be used to compound drugs that appear on a list established by the FDA of drugs for which there is a shortage. Although the FDA has not yet established a list of bulk drug substances for which there is a clinical need, the FDA has announced an interim policy pursuant to which bulk drug substances may be nominated for inclusion on such list and, provided certain conditions are met, outsourcing facilities may compound with such bulk drug substances pending evaluation of the substances for inclusion on the FDA's list of bulk drug substances for which there is a clinical need. Cantharidin is currently listed among those nominated substances for which bulk drug substance may be used in compounding by outsourcing facilities pending FDA's evaluation. In March 2019, the FDA issued Guidance for Industry addressing the criteria by which the FDA intends to evaluate whether there exists a clinical need for compounding with a bulk drug substance, including, in the case of a bulk drug substance that is a component of an FDA-approved drug, an evaluation of whether there exists an attribute of the approved drug that makes it medically unsuitable to treat certain patients; whether the drug product proposed to be compounded is intended to address that attribute; and whether the drug product proposed to be compounded must be compounded from a bulk drug substance rather than from the finished, FDA-approved drug product. If FDA implements these criteria as in the Guidance for Industry, and if VP-102 is approved, an outsourcing facility would need to satisfy these criteria before being permitted to compound a cantharidin product using bulk cantharidin.

In addition, an outsourcing facility must meet other conditions described in Section 503B, including reporting adverse events and labeling compounded products with certain information. Registered outsourcing facilities are prohibited from selling compounded drugs through a wholesale distributor, or from compounding drugs that are essentially copies of FDA-approved drugs. A drug is "essentially a copy of an approved drug" if it is identical or nearly identical to an approved drug, which the FDA has interpreted to mean that it has the same active ingredient(s), route of administration, dosage form, dosage strength and excipients as the approved drug, or if it has the same active ingredient as an approved drug and there is not a change from the approved drug that produces a clinical difference for an individual patient, as determined by the prescribing practitioner. Registered outsourcing facilities are subject to FDA inspection, and FDA conducts inspections on a risk-based frequency under Section 503B(b)(4) of the FDCA.

Federal and State Fraud and Abuse, Data Privacy and Security, and Transparency Laws and Regulations

In addition to FDA restrictions on marketing of pharmaceutical products, federal and state healthcare laws and regulations restrict business practices in the biopharmaceutical industry. These laws may impact, among other things, our current and future business operations, including our clinical research activities, and proposed sales, marketing and education programs and constrain the business or financial arrangements and relationships with healthcare providers and other parties through which we market, sell and distribute our products for which we obtain marketing approval. These laws include anti-kickback and false claims laws and regulations, data privacy and security, and transparency laws and regulations, including, without limitation, those laws described below.

The federal Anti-Kickback Statute prohibits, among other things, individuals or entities from knowingly and willfully offering, paying, soliciting or receiving remuneration, directly or indirectly, overtly or covertly, in cash or in kind to induce or in return for purchasing, leasing, ordering or arranging for or recommending the purchase, lease or order of any item or service reimbursable under Medicare, Medicaid or other federal healthcare programs. The term “remuneration” has been broadly interpreted to include anything of value. The federal Anti-Kickback Statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on one hand and prescribers, purchasers, formulary managers, and other individuals and entities on the other hand. Although there are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution, the exceptions and safe harbors are drawn narrowly and require strict compliance to offer protection. Practices that involve remuneration that may be alleged to be intended to induce prescribing, purchases or recommendations may be subject to scrutiny if they do not qualify for an exception or safe harbor.

In addition, a person or entity does not need to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation. Further, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act and the civil monetary penalties statute.

The federal civil and criminal false claims laws, including the False Claims Act, which prohibit, among other things, any individual or entity from knowingly presenting, or causing to be presented, a false claim for payment to the federal government or knowingly making, using or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government. A claim includes “any request or demand” for money or property presented to the U.S. government. Several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies’ marketing of products for unapproved, and thus non-reimbursable, uses.

The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, created additional federal criminal statutes that prohibit, among other things, knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation.

HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and their respective implementing regulations, impose certain requirements relating to the privacy, security and transmission of individually identifiable health information without appropriate authorization on certain health plans, healthcare clearinghouses and certain healthcare providers, known as covered entities, and their respective business associates, independent contractors that perform certain services involving the use or disclosure of individually identifiable health information. HITECH also created new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce HIPAA and seek attorneys’ fees and costs associated with pursuing federal civil actions.

The federal Physician Payments Sunshine Act requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children’s Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services, or CMS, information related to payments or other transfers of value made to physicians and teaching hospitals, and applicable manufacturers and applicable group purchasing organizations to report annually to CMS ownership and investment interests held by physicians and their immediate family members.

We may also be subject to state and foreign law equivalents of each of the above federal laws; state laws that require manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, or that otherwise restrict payments that may be made to healthcare providers; state laws that require reporting of information related to drug pricing; state and local laws that require the registration of pharmaceutical sales representatives; as well as state and foreign laws that govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. Because of the breadth of these laws and the narrowness of the statutory exceptions and regulatory safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from participating in government funded healthcare programs, such as Medicare and Medicaid, 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, contractual damages, reputational harm and the curtailment or restructuring of our operations. To the extent that any of our products are sold in a foreign country, we may be subject to similar foreign laws and regulations, which may include, for instance, applicable post-marketing requirements, including safety surveillance, anti-fraud and abuse laws and implementation of corporate compliance programs and reporting of payments or transfers of value to healthcare professionals.

Coverage and Reimbursement

Market acceptance and sales of any drug products depend in part on coverage and the extent to which adequate reimbursement for drug products will be available from third-party payors, including government health administration authorities, managed care organizations and other private health insurers. Coverage and reimbursement for our product also depends on coverage and adequate reimbursement for the procedures using VP-102 for the treatment of molluscum and/or common warts. Obtaining coverage and adequate reimbursement for our products may be particularly difficult because of the higher prices often associated with drugs administered under the supervision of a physician. Separate reimbursement for the product itself or the treatment or procedure in which our product is used may not be available. Even if the procedure using our product is covered, third-party payors may package the cost of the drug into the procedure payment and not separately reimburse the physician for the costs associated with our product. A decision by a third-party payor not to cover or separately reimburse for our products could reduce physician utilization of our products once approved. Additionally, in the United States, there is no uniform policy of coverage and reimbursement among third-party payors. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own coverage and reimbursement policies. However, decisions regarding the extent of coverage and amount of reimbursement to be provided is made on a payor-by-payor basis. One payor's determination to provide coverage for a drug product does not assure that other payors will also provide coverage, and adequate reimbursement.

Third-party payors determine which medical procedures they will cover and establish reimbursement levels. Even if a third-party payor covers a particular procedure, the resulting reimbursement payment rates may not be adequate. Patients who are treated in-office for a medical condition generally rely on third-party payors to reimburse all or part of the costs associated with the procedure and may be unwilling to undergo such procedures for the treatment of molluscum and/or common warts in the absence of such coverage and adequate reimbursement.

Reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that a procedure is safe, effective, and medically necessary; appropriate for the specific patient; cost-effective; supported by peer-reviewed medical journals; included in clinical practice guidelines; and neither cosmetic, experimental, nor investigational.

Further, from time to time, typically on an annual basis, payment rates are updated and revised by third-party payors. Such updates could impact the demand for our product candidates, to the extent that customers who are prescribed our product candidates, if approved, are not separately reimbursed for the cost of the product candidates. An example of payment updates is the Medicare program updates to physician payments, which is done on an annual basis. In the past, when the application of the formula resulted in lower payment, Congress has passed interim legislation to prevent the reductions. The Medicare Access and CHIP Reauthorization Act of 2015, or MACRA, ended the use of the statutory formula also referred to as the Sustainable Growth Rate, for certain payment and established a quality payment incentive program, also referred to as the Quality Payment Program. This program provides clinicians with two ways to participate, including through the Advanced Alternative Payment Models, or APMs, and the Merit-based Incentive Payment System, or MIPS. In November 2019, CMS issued a final rule finalizing the changes to the Quality Payment Program. At this time, it is unclear how the introduction of the Quality Payment Program will impact overall physician reimbursement under the Medicare program. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors.

Impact of Healthcare Reform on our Business

In the United States and some foreign jurisdictions, there have been, and continue to be, several legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of drug product candidates, restrict or regulate post-approval activities, and affect the profitable sale of drug product candidates.

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. In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively, the ACA, was passed, which substantially changed the way healthcare is financed by both the government and private insurers, and significantly impacts the U.S. pharmaceutical industry. The ACA, among other things: (i) increased the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program and extends the rebate program to individuals enrolled in Medicaid managed care organizations; (ii) established an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents apportioned among these entities according to their market share in some government healthcare programs; (iii) expanded the availability of lower pricing under the 340B drug pricing program by adding new entities to the program; (iv) increased the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program, to 23.1% and 13% of the average manufacturer price for most branded and generic drugs, respectively and capped the total rebate amount for innovator drugs at 100% of the Average Manufacturer Price, or AMP; (v) expanded the eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals, thereby potentially increasing manufacturers' Medicaid rebate liability; (vi) created a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research; and (vii) established a Center for Medicare and Medicaid Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug.

There remain judicial and Congressional challenges to certain aspects of the ACA, as well as recent efforts by the Trump administration to repeal or replace certain aspects of the ACA. While Congress has not passed comprehensive repeal legislation, bills affecting the implementation of certain taxes under the ACA have been signed into law. The Tax Cuts and Jobs Act of 2017, or Tax Act, includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate". In addition, the 2020 federal spending package permanently eliminates, effective January 1, 2020, the ACA-mandated "Cadillac" tax on high-cost employer-sponsored health coverage and medical device tax and, effective January 1, 2021, also eliminates the health insurer tax. Further, the Bipartisan Budget Act of 2018, or the BBA, among other things, amends the ACA, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole." In December 2018, CMS published a new final rule permitting further collections and payments to and from certain ACA qualified health plans and health insurance issuers under the ACA risk adjustment program in response to the outcome of federal district court litigation regarding the method

CMS uses to determine this risk adjustment. On December 14, 2018, a Texas U.S. District Court Judge ruled that the ACA is unconstitutional in its entirety because the “individual mandate” was repealed by Congress as part of the Tax Act. Additionally, on December 18, 2019, the U.S. Court of Appeals for the 5th Circuit upheld the District Court ruling that the individual mandate was unconstitutional and remanded the case back to the District Court to determine whether the remaining provisions of the ACA are invalid as well. It is unclear how this decision, future decisions, subsequent appeals, and other efforts to repeal and replace the ACA will impact the ACA.

Other legislative changes have been proposed and adopted since the ACA was enacted. These changes include aggregate reductions to Medicare payments to providers of 2% per fiscal year pursuant to the Budget Control Act of 2011, which began in 2013, and due to subsequent legislative amendments to the statute, including the BBA, will remain in effect through 2029 unless additional Congressional action is taken. The American Taxpayer Relief Act of 2012, among other things, further reduced Medicare payments to several providers, including hospitals and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding, which could have an adverse effect on customers for our product candidates, if approved, and, accordingly, our financial operations.

Additionally, there has been heightened governmental scrutiny in the United States of pharmaceutical pricing practices in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for products. At the federal level, the Trump administration’s budget proposal for fiscal year 2020 contains further drug price control measures that could be enacted during the budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Additionally, the Trump administration released a “Blueprint” to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. The Department of Health and Human Services, or HHS, has solicited feedback on some of these measures and implemented others under its existing authority. For example, in May 2019, CMS issued a final rule to allow Medicare Advantage plans the option to use step therapy for Part B drugs beginning January 1, 2020. This final rule codified CMS’s policy change that was effective January 1, 2019. While a number of these and other measures may require additional authorization to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. 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.

Further, on May 30, 2018, the Trickett Wendler, Frank Mongiello, Jordan McLinn, and Matthew Bellina Right to Try Act of 2017, or the Right to Try Act, was signed into law. The law, among other things, provides a federal framework for certain patients to access certain investigational new drug products that have completed a Phase I clinical trial and that are undergoing investigation for FDA approval. Under certain circumstances, eligible patients can seek treatment without enrolling in clinical trials and without obtaining FDA permission under the FDA expanded access program. There is no obligation for a pharmaceutical manufacturer to make its drug products available to eligible patients as a result of the Right to Try Act.

Employees

As of December 31, 2019, we had 17 full-time employees. All of our employees are located in the United States. None of our employees is represented by a labor union or covered by a collective bargaining agreement. We consider our relationship with our employees to be good.

Insurance

We currently maintain product liability insurance coverage for our products and clinical trials in amounts consistent with industry standards. However, insurance coverage is becoming increasingly expensive, and we may not be able to obtain or maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses due to liability.

Corporate Information

We were incorporated under the laws of the State of Delaware on July 3, 2013. Our principal executive offices are located at 10 North High Street, Suite 200, West Chester, PA 19380 and our telephone number is (484) 453-3300.

Available Information

Our internet website address is www.verrica.com. In addition to the information about us and our subsidiaries contained in this Annual Report, information about us can be found on our website. Our website and information included in or linked to our website are not part of this Annual Report.

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, are available free of charge through our website as soon as reasonably practicable after they are electronically filed with or furnished to the Securities and Exchange Commission, or SEC. Additionally the SEC maintains an internet site that contains reports, proxy and information statements and other information. The address of the SEC's website is www.sec.gov.

ITEM 1A. RISK FACTORS

You should carefully consider the risks described below, as well as general economic and business risks and the other information in this Annual Report on Form 10-K. The occurrence of any of the events or circumstances described below or other adverse events could have a material adverse effect on our business, results of operations and financial condition and could cause the trading price of our common stock to decline. Additional risks or uncertainties not presently known to us or that we currently deem immaterial may also harm our business.

Risks Related to Our Financial Position and Capital Needs

We have incurred significant losses since our inception. We expect to incur losses over the next several years and may never achieve or maintain profitability.

We are a clinical-stage dermatology therapeutics company with limited operating history. Since inception, we have incurred significant net losses. We incurred net losses of \$28.2 million and \$20.6 million for the years ended December 31, 2019 and 2018, respectively. As of December 31, 2019, we had an accumulated deficit of \$61.2 million. Since inception, we have financed our operations with \$123.2 million in gross proceeds raised in our initial public offering and private placements of convertible debt and convertible preferred stock. We have no products approved for commercialization and have never generated any revenue.

We have devoted substantially all of our financial resources and efforts to the development of our novel topical solution of cantharidin and our lead product candidate, VP-102, for the treatment of molluscum, including preclinical studies and clinical trials. We have completed two pivotal Phase 3 clinical trials and submitted an NDA for VP-102 for the treatment of molluscum. In addition to developing VP-102 for the treatment of molluscum, we are also developing VP-102 as a treatment for common warts and we expect to initiate a Phase 3 program for this indication in the first half of 2020. We also have an ongoing Phase 2 clinical trial for VP-102 as a treatment for external genital warts. We also intend to initiate a Phase 2 clinical trial for our second cantharidin-based product candidate, VP-103, for the treatment of plantar warts, in mid-2020. Therefore, we expect to continue to incur significant expenses and operating losses over the next several years. Our net losses may fluctuate significantly from quarter to quarter and year to year. We anticipate that our expenses will increase substantially as we:

- continue our ongoing clinical programs evaluating VP-102 for the treatment of common warts and external genital warts, as well as initiate and complete additional clinical trials as needed;
- initiate clinical trials evaluating VP-103 for the treatment of plantar warts;
- pursue regulatory approvals for VP-102 for the treatment of molluscum, and eventually for the treatment of common warts, external genital warts or any other indications we may pursue for VP-102, as well as for VP-103;
- seek to discover and develop additional product candidates;
- establish a commercialization infrastructure and scale up external manufacturing and distribution capabilities to commercialize any product candidates for which we may obtain regulatory approval, including VP-102 and VP-103;
- seek to in-license or acquire additional product candidates for other dermatological conditions;
- adapt our regulatory compliance efforts to incorporate requirements applicable to marketed products;
- maintain, expand and protect our intellectual property portfolio;
- hire additional clinical, manufacturing and scientific personnel;
- add operational, financial and management information systems and personnel, including personnel to support our product development and planned future commercialization efforts; and
- incur additional legal, accounting and other expenses in operating as a public company.

To become and remain profitable, we must succeed in developing and eventually commercializing product candidates that generate significant revenue. This will require us to be successful in a range of challenging activities, including completing preclinical testing and clinical trials of our product candidates, obtaining regulatory approval, and manufacturing, marketing and selling any product candidates for which we may obtain regulatory approval, as well as discovering and developing additional product candidates. We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, may never generate revenue that is significant enough to achieve profitability.

In cases where we are successful in obtaining regulatory approval to market one or more of our product candidates, our revenue will be dependent, in part, upon the size of the markets in the territories for which we gain regulatory approval, the accepted price for the product, the ability to obtain coverage and reimbursement, and whether we own the commercial rights for that territory. If the number of our addressable patients is not as significant as we estimate, the indication approved by regulatory authorities is narrower than we expect, or the treatment population is narrowed by competition, physician choice or treatment guidelines, we may not generate significant revenue from sales of such products, even if approved.

Because of the numerous risks and uncertainties associated with product 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 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 the value of our company and could impair our ability to raise capital, expand our business, maintain our development efforts, obtain product approvals, diversify our offerings or continue our operations.

We may need substantial additional funding to meet our financial obligations and to pursue our business objectives. If we are unable to raise capital when needed, we could be forced to curtail our planned operations and the pursuit of our growth strategy.

Identifying potential product candidates and conducting preclinical testing and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain regulatory approval and achieve product sales. We expect to continue to incur significant expenses and operating losses over the next several years as we seek marketing approval for VP-102 for the treatment of molluscum, pursue clinical trials and marketing approval for VP-102 for the treatment of common warts, external genital warts and other indications, pursue clinical trials and marketing approval for VP-103 for the treatment of plantar warts and advance any of our other product candidates we may develop or otherwise acquire. In addition, our product candidates, if approved, may not achieve commercial success. Our revenue, if any, will be derived from sales of products that are not currently commercially available. If we obtain marketing approval for VP-102 for the treatment of molluscum or common warts or any other product candidates that we develop, we expect to incur significant commercialization expenses related to product sales, marketing, distribution and manufacturing.

As of December 31, 2019, we had cash, cash equivalents and marketable securities of \$62.0 million. On March 10, 2020, we entered into (i) a mezzanine loan and security agreement, or the Mezzanine Loan Agreement, with Silicon Valley Bank, as administrative agent and collateral agent, or the Agent, and Silicon Valley Bank and West River Innovation Lending Fund VIII, L.P., as lenders, or the Mezzanine Lenders, pursuant to which the Mezzanine Lenders have agreed to lend the Company up to \$50.0 million in a series of term loans, and (ii) a loan and security agreement, or the Senior Loan Agreement, and together with the Mezzanine Loan Agreement, the Loan Agreements, with Silicon Valley Bank, as lender, or the Senior Lender, and together with the Mezzanine Lenders, the Lenders, pursuant to which the Senior Lender has agreed to provide the Company a revolving line of credit of up to \$5.0 million. Upon entering into the Loan Agreements, the Company borrowed \$35.0 million in term loans from the Mezzanine Lenders.

We believe the \$35 million in proceeds received at closing of term loan in combination with existing cash, cash equivalents, and marketable securities will be sufficient to support our planned operations, which include expenses for the commercialization of YCANTH™, if approved, and continued full clinical development of VP-102 for additional indications, including common warts and external genital warts, as well as VP-103 for plantar warts, at least through the second quarter of 2021. This estimate is based on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we expect. Changes may occur beyond our control that would cause us to consume our available capital before that time, including changes in and progress of our development activities, acquisitions of additional product candidates, and changes in regulation. Our future capital requirements will depend on many factors, including:

- the progress and results of our Phase 3 clinical program and any other additional clinical trials evaluating VP-102 as a potential treatment for common warts;
- the scope, progress, results and costs of the development programs evaluating VP-102 as a potential treatment for external genital warts and any other indications of VP-102 we may decide to pursue and VP-103;
- the extent to which we develop, in-license or acquire other product candidates and technologies;
- 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 costs and timing of future commercialization activities, including product manufacturing, marketing, sales and distribution, for VP-102 for the treatment of molluscum, if approved, and any of our product candidates for which we receive marketing approval;
- the revenue, if any, received from commercial sales of our product candidates for which we receive marketing approval;
- our ability to establish collaborations to commercialize VP-102 or any of our other product candidates outside the United States; and
- 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.

We may require additional capital to commercialize VP-102 for the treatment of molluscum, common warts and/or external genital warts, and/or VP-103 for the treatment of plantar warts. If we receive regulatory approval for VP-102 or VP-103 for these indications, we expect to incur significant commercialization expenses related to product manufacturing, sales, marketing and distribution, depending on where we choose to commercialize. Additional funds may not be available on a timely basis, on favorable terms, or at all, and such funds, if raised, may not be sufficient to enable us to continue to implement our long-term business strategy. If we are unable to raise sufficient additional capital, we could be forced to curtail our planned operations and the pursuit of our growth strategy.

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

Until such time, if ever, as we can generate substantial revenue, we may finance our cash needs through a combination of equity offerings, debt financings and license and collaboration agreements. We do not currently have

any committed external source of funds. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. For instance, under the Loan Agreements as described below, we are restricted from paying dividends or making other distributions or payments on our capital stock, subject to limited exceptions.

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 or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

We have a limited operating history and no history of commercializing products, which may make it difficult for you to evaluate the success of our business to date and to assess our future viability.

We commenced operations in 2013, and our operations to date have been largely focused on raising capital and developing our novel topical solution of cantharidin and our lead product candidate, VP-102, for the treatment of molluscum and common warts, including undertaking preclinical studies and conducting clinical trials. VP-102 is our only product candidate for which we have conducted clinical trials. We have not yet demonstrated our ability to successfully obtain regulatory approvals, manufacture a product on a commercial scale, or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful commercialization. Consequently, any predictions you make about our future success or viability may not be as accurate as they could be if we had a longer operating history or a history of successfully developing and commercializing products.

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 development focus to a company capable of supporting commercial activities. We may not be successful in such a transition.

We may not be able to generate sufficient cash to service our indebtedness.

We have entered into a Mezzanine Loan Agreement and a Senior Loan Agreement with our Lenders, pursuant to which we have borrowed an aggregate of \$35.0 million. Our obligations under the Senior Loan Agreement and the Mezzanine Loan Agreement are secured by, respectively, a first priority perfected security interest and second priority perfected security interest in substantially all of our current and future assets, other than our intellectual property (except rights to payment from the sale, licensing or disposition of such intellectual property). We have also agreed not to encumber our intellectual property assets, except as permitted by the Loan Agreements.

We are subject to a number of affirmative and restrictive covenants pursuant to the Loan Agreements, including covenants regarding achieving minimum product revenues, delivery of financial statements, maintenance of inventory, payment of taxes, maintenance of insurance, protection of intellectual property rights, dispositions of property, business combinations or acquisitions, incurrence of additional indebtedness or liens, investments and transactions with affiliates, among other customary covenants. Our obligations under the Loan Agreements are subject to acceleration upon the occurrence of specified events of default, including our failure to satisfy our payment obligations under the Loan Agreements, the breach of certain of our other covenants under the Loan Agreements, or the occurrence of a material adverse change, cross defaults to other indebtedness or material agreements, judgment defaults and defaults related to failure to maintain governmental approvals failure of which to maintain could result in a material adverse effect. We are currently in compliance with these covenants. We may also enter into other debt agreements in the future which may contain similar or more restrictive terms.

Our ability to make scheduled monthly payments or to refinance our debt obligations depends on numerous factors, including the amount of our cash reserves and our actual and projected financial and operating performance.

These amounts and our performance are subject to certain financial and business factors, as well as prevailing economic and competitive conditions, some of which may be beyond our control. We cannot assure you that we will maintain a level of cash reserves or cash flows from operating activities sufficient to permit us to pay the principal, premium, if any, and interest on our existing or future indebtedness. If our cash flows and capital resources are insufficient to fund our debt service obligations, we may be forced to reduce or delay capital expenditures, sell assets or operations, seek additional capital or restructure or refinance our indebtedness. We cannot assure you that we would be able to take any of these actions, or that these actions would permit us to meet our scheduled debt service obligations. Failure to comply with the conditions of the Loan Agreements could result in an event of default, which could result in an acceleration of amounts due under the Loan Agreements. We may not have sufficient funds or may be unable to arrange for additional financing to repay our indebtedness or to make any accelerated payments, and the Lenders could seek to enforce security interests in the collateral securing such indebtedness, which would harm our business.

Risks Related to the Development of Our Product Candidates

Our lead product candidate, VP-102, is being developed for the treatment of molluscum, common warts and external genital warts, for which we are currently conducting clinical trials. If we are unable to successfully develop, receive regulatory approval for and commercialize VP-102 for the treatment of molluscum, common warts, external genital warts or any other indications, or successfully develop any other product candidates, or experience significant delays in doing so, our business will be harmed.

We currently have no products that are approved for commercial sale. We have only one product candidate, VP-102 for which we have conducted clinical trials. We have completed two pivotal Phase 3 clinical trials and submitted a New Drug Application, or (NDA) for VP-102 for the treatment of molluscum in the U.S. Our NDA is presently under review by FDA and there can be no assurance that we will receive approval. In addition to developing VP-102 for the treatment of molluscum, we are also developing VP-102 as a treatment for common warts and plan to initiate two Phase 3 clinical trials for this indication in the first half of 2020. We also have an ongoing Phase 2 clinical trial for VP-102 as a treatment for external genital warts. We also intend to initiate a Phase 2 clinical trial for VP-103 for the treatment of plantar warts in mid-2020. We have not completed the development and regulatory approval process of any product candidates and we may never be able to develop marketable products. We have invested substantially all of our efforts and financial resources in the development of our cantharidin formula and VP-102 for the treatment of molluscum, common warts and genital warts. Our ability to generate revenue from our product candidates, will depend heavily on their successful development, regulatory approval and eventual commercialization of these product candidates. The success of VP-102, VP-103 or any other product candidates that we develop or otherwise may acquire will depend on several factors, including: timely and successful completion of preclinical studies and our clinical trials;

- successful development of, or making arrangements with third-party manufacturers for, our commercial manufacturing processes for any of our product candidates that receive regulatory approval;
- receipt of timely marketing approvals from applicable regulatory authorities;
- launching commercial sales of products, if approved;
- acceptance of our products, if approved, by patients, the medical community and third-party payors, for their approved indications;

- our success in educating physicians and patients about the benefits, administration and use of VP-102 or any other product candidates, if approved;
- the prevalence and severity of adverse events experienced with VP-102 or our other product candidates;
- the availability, perceived advantages, cost, safety and efficacy of alternative treatments for molluscum and/or common warts or any other indications which we may pursue for VP-102 or any other product candidates;
- our ability to produce VP-102 or any other product candidates on a commercial scale;
- obtaining and maintaining patent, trademark and trade secret protection and regulatory exclusivity for our product candidates and otherwise protecting our rights in our intellectual property portfolio;
- maintaining compliance with regulatory requirements, including current good manufacturing practices, or cGMPs;
- competing effectively with other procedures; and
- maintaining a continued acceptable safety, tolerability and efficacy profile of the products following approval.

Whether regulatory approval will be granted is unpredictable and depends upon numerous factors, including the substantial discretion of the regulatory authorities. Our product candidates' success in clinical trials is not guaranteed, and even if clinical trials are successful, it will not guarantee regulatory approval. Following submission of an NDA, it may not be accepted for substantive review, or even if it is accepted for substantive review, 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 or approve 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 VP-102, VP-103 or any of our other product candidates we may develop or otherwise acquire will never 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 or an inability to successfully commercialize our product candidates, which would harm our business.

Clinical product 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 product candidates is high. It is impossible to predict when or if any of our product candidates will prove effective or safe in humans or 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 extensive 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 inherently uncertain as to outcome. A failure of one or more clinical trials can occur at any stage of testing or at any time during the trial process. The outcome of preclinical testing and early clinical trials may not be predictive of the results of later clinical trials, and interim results of a clinical trial do not necessarily predict final results. 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 cannot assure you that any clinical trial that we have conducted, are currently conducting, or may conduct in the future, will demonstrate consistent or adequate efficacy and safety to obtain regulatory approval to market our product candidates.

We may experience delays in ongoing clinical trials for our product candidates, and we do not know whether future clinical trials, if any, will begin on time, need to be redesigned, enroll an adequate number of patients on time or be completed on schedule, if at all. For example, following the initiation of our Phase 2 trial of VP-102 for the treatment of common warts, we discovered the need to amend the treatment regimen of the protocol in order to introduce greater flexibility of the treatment interval. We amended the trial protocol in order to add a second cohort to the trial with the desired treatment frequency. 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 institutional review boards may not authorize us or our investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- we may experience delays in reaching, or fail to reach, agreement on acceptable clinical trial contracts or clinical trial protocols with prospective trial sites or prospective contract research organizations, or CROs, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- clinical trials of our product candidates may produce negative or inconclusive results, including failure to demonstrate statistical significance, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon product development programs;
- the number of patients 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 or fail to return for post-treatment follow-up at a higher rate than we anticipate;
- our product candidates may have undesirable side effects or other unexpected characteristics, causing us or our investigators, regulators or institutional review boards to suspend or terminate the trials;
- our third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- regulators or institutional review boards may require that we or our investigators suspend or terminate clinical development 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; and
- the supply or quality of our product candidates or other materials necessary to conduct clinical trials of our product candidates may be insufficient or inadequate.

We could also encounter delays if a clinical trial is suspended or terminated by us, by the institutional review boards of the institutions in which such trials are being conducted, by the data safety monitoring board for such trial or by the FDA or other regulatory authorities. Such authorities may impose such a suspension or termination due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or 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, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. If we experience delays in the completion of, or termination of, any clinical trial of our product candidates, the commercial prospects of our product candidates will be harmed, and our ability to generate product revenues from any of these product candidates will be delayed. In addition, any delays in completing our clinical trials will increase our costs, slow down our product candidate development and approval process and jeopardize our ability to commence product sales and generate revenues. Any of these occurrences may harm our business, financial condition and prospects significantly. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates. 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 favorable 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 with labeling that includes significant use or distribution restrictions or safety warnings;
- be subject to additional post-marketing testing requirements; or
- have the product removed from the market after obtaining marketing approval.

Our product development costs will also increase if we experience delays in testing or marketing approvals. We do not know whether any of our preclinical studies or clinical trials will begin as planned, will need to be restructured or will be completed on schedule, or at all. Significant preclinical study or clinical trial delays also could shorten any periods during which we may have the exclusive right to commercialize our product candidates or allow our competitors to bring products to market before we do and impair our ability to successfully commercialize, or receive approval for, our product candidates. For example, if a competitor obtained FDA approval for a product containing cantharidin before we are able to obtain approval for our product, this could result in the approval of our product being delayed until the expiration of any NCE exclusivity or other regulatory exclusivity received by such competitor.

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

Successful and timely completion of clinical trials will require that we enroll a sufficient number of patients. Patient enrollment, a significant factor in the timing of clinical trials, is affected by many factors including the size and nature of the patient population. Trials may be subject to delays as a result of patient enrollment taking longer than anticipated or patient withdrawal. 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 patients to participate in these trials as 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. Subject enrollment is affected by other factors including:

- the eligibility criteria for the trial in question;
- the perceived risks and benefits of the product candidate in the trial;
- the availability of products and other treatments to treat the skin disease in the trial;
- the willingness of patients to be enrolled in our clinical trials;
- the efforts to facilitate timely enrollment in clinical trials;
- the patient referral practices of physicians;
- the ability to monitor patients adequately during and after treatment; and
- the proximity and availability of clinical trial sites for prospective patients.

Our inability to enroll a sufficient number of patients for clinical trials would result in significant delays and could require us or them to abandon one or more clinical trials altogether. For example, parents may be reluctant to enroll their children in our clinical trials that have a relatively high risk of their child being assigned to placebo when in the alternative, they could decline participation, and receive compounded cantharidin outside of the clinical trial, if available, or pursue other alternative therapies. Enrollment delays in these clinical trials may result in increased development costs for our product candidates, which would cause the value of our company to decline and limit our ability to obtain additional financing. Furthermore, we rely on and expect to continue to rely on CROs and clinical trial sites to ensure the proper and timely conduct of our clinical trials and we will have limited influence over their performance.

Furthermore, even if we are able to enroll a sufficient number of patients for our clinical trials, we may have difficulty maintaining patients in our clinical trials.

Success in preclinical studies or earlier clinical trials may not be indicative of results in future clinical trials.

Success in preclinical testing and early clinical trials does not ensure that later clinical trials will generate the same results or otherwise provide adequate data to demonstrate the efficacy and safety of a product candidate. Preclinical tests and Phase 1 and Phase 2 clinical trials are primarily designed to test safety, to study pharmacokinetics and pharmacodynamics and to understand the side effects of product candidates at various doses and schedules. Success in preclinical or animal studies and early clinical trials does not ensure that later large-scale efficacy trials will be successful, nor does it predict final results. Our product candidates may fail to show the desired safety and efficacy in clinical development despite positive results in preclinical studies or having successfully advanced through initial clinical trials.

In addition, the design of a clinical trial can determine whether its results will support approval of a product and flaws in the design of a clinical trial may not become apparent until the clinical trial is well advanced. As an organization, we have limited experience designing clinical trials and may be unable to design and execute a clinical trial to support regulatory approval. Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials even after achieving promising results in preclinical testing and earlier-stage clinical trials. Data obtained from preclinical and clinical activities are subject to varying interpretations, which may delay, limit or prevent regulatory approval. In addition, we may experience regulatory delays or rejections as a result of many factors, including changes in regulatory policy during the period of our product candidate development. Any such delays could negatively impact our business, financial condition, results of operations and prospects.

Interim “top-line” and preliminary results from our clinical trials that we announce or publish from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publish interim top-line or preliminary results from our clinical trials. Interim results 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. Preliminary or top-line results also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, interim and preliminary data should be viewed with caution until the final data are available. Differences between preliminary or interim data and final data could significantly harm our business prospects and may cause the trading price of our common stock to fluctuate significantly.

Our clinical trials may fail to demonstrate the safety and efficacy of our product candidates, or serious adverse or unacceptable side effects may be identified during the development of our product candidates, which could prevent or delay regulatory approval and commercialization, increase our costs or necessitate the abandonment or limitation of the development of some of our product candidates.

Before obtaining regulatory approvals for the commercial sale of our product candidates, we must demonstrate through lengthy, complex and expensive preclinical testing and clinical trials that our product candidates are both safe and effective for use in each target indication, and failures can occur at any stage of testing. Clinical trials often fail to demonstrate safety and efficacy of the product candidate studied for the target indication.

If our product candidates are associated with side effects in clinical trials or have characteristics that are unexpected, we may need to abandon their development or limit development to more narrow uses in which the side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective. The FDA or an institutional review board may also require that we suspend, discontinue, or limit our clinical trials based on safety information, or that we conduct additional animal or human studies regarding the safety and efficacy of our product candidates which we have not planned or anticipated. Such findings could further result in regulatory authorities failing to provide marketing authorization for our product candidates or limiting the scope of the approved indication, if approved. Many product candidates that initially showed promise in early stage testing have later been found to cause side effects that prevented further development of the product candidate.

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

- regulatory authorities may withdraw approvals of such product;
- regulatory authorities may require additional warnings on the labels;
- we may be required to create a medication guide outlining the risks of such side effects for distribution to patients;
- we could be sued and held liable for harm caused to patients; and
- our reputation and physician or patient acceptance of our products may suffer.

There can be no assurance that we will resolve any issues related to any product-related adverse events to the satisfaction of the FDA or any regulatory agency in a timely manner or at all. Moreover, any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if approved, and could significantly harm our business, results of operations and prospects.

While we have negotiated a SPA agreement with the FDA relating to one of our Phase 3 clinical trials for VP-102, this agreement does not guarantee approval of VP-102 or any other particular outcome with respect to regulatory review of the study or the product candidate.

We have completed two Phase 3 clinical trials of VP-102 for the treatment of molluscum, one of which was conducted under a SPA with the FDA. The FDA's SPA process is designed to facilitate the FDA's review and approval of drugs by allowing the FDA to evaluate the proposed design and size of Phase 3 clinical trials that are intended to form the primary basis for determining a drug product's efficacy. Upon specific request by a clinical trial sponsor, the FDA will evaluate the protocol and respond to a sponsor's questions regarding, among other things, primary efficacy endpoints, trial conduct and data analysis, within 45 days of receipt of the request. The FDA ultimately assesses whether the protocol design and planned analysis of the trial are acceptable to support regulatory submission for the product candidate with respect to the indication studied. All agreements and disagreements between the FDA and the sponsor regarding a SPA must be clearly documented in a SPA letter or the minutes of a meeting between the sponsor and the FDA.

However, a SPA agreement does not guarantee approval of a product candidate, and even if the FDA agrees to the design, execution, and analysis proposed in protocols reviewed under the SPA process, the FDA may revoke or alter its agreement in certain circumstances. In particular, a SPA agreement is not binding on the FDA if public health concerns emerge that were unrecognized at the time of the SPA agreement, other new scientific concerns regarding product safety or efficacy arise, the sponsor fails to comply with the agreed upon trial protocols, or the relevant data, assumptions or information provided by the sponsor in a request for the SPA change or are found to be false or omit relevant facts. After a SPA agreement is finalized, the SPA agreement may be modified, and such modification will be deemed binding on the FDA review division, except under the circumstances described above, if the FDA and the sponsor agree in writing to modify the protocol and such modification is intended to improve the study. The FDA retains significant latitude and discretion in interpreting the terms of the SPA agreement and the data and results from any study that is the subject of the SPA agreement.

We cannot assure you that our Phase 3 clinical trial conducted under the SPA will be deemed acceptable to the FDA under our SPA agreement or will result in any FDA approval for VP-102. If the FDA revokes or alters its agreement under the SPA, believes that the manner in which the study was conducted was not consistent with the terms of our SPA, or interprets the data collected from the clinical trial differently than we do, the FDA may not deem the data sufficient to support an application for marketing approval, which could materially adversely affect our business, financial condition and results of operations.

VP-102 is a drug-device combination involving a proprietary applicator, which may result in additional regulatory and other risks.

VP-102 is a drug-device combination product for administration of our cantharidin formulation through our proprietary applicator. We may experience delays in obtaining regulatory approval of VP-102 given the increased complexity of the review process when approval of a drug and a delivery device is sought under a single marketing application. VP-102 will be regulated as a drug-device combination product, which requires coordination within the FDA and similar foreign regulatory agencies for review of the product candidate's device and drug components. We have filed a single marketing application for the approval of a drug-device combination product, with guidance by the FDA. Although the FDA and similar foreign regulatory agencies have systems in place for the review and approval of combination products such as ours, we may experience delays in the development, approval, and commercialization of our product candidate due to regulatory timing constraints and uncertainties in the product development and approval process, the inherent complexities of combination products, as well as coordination between two different centers within FDA responsible for review of the different components of the combination product.

Failure to successfully develop or supply the device, delays in or failure of the studies conducted by us, our collaborators, or third-party providers, or failure of our company, our collaborators, or third-party providers to obtain or maintain regulatory approval or clearance of the device component of VP-102 could result in increased development costs, delays in or failure to obtain regulatory approval, and associated delays in VP-102 reaching the market. Further, failure to successfully develop or supply the device, or to gain or maintain its approval, could adversely affect sales of VP-102.

Changes in methods of product candidate manufacturing or formulation may result in additional costs or delay.

As product candidates proceed through preclinical studies to late-stage clinical trials towards potential approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods and formulation, are altered along the way in an effort to optimize processes and results. Such changes carry the risk that they will not achieve these intended objectives. Any of these changes could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials conducted with the altered materials. Such changes may also require additional testing, FDA notification or FDA approval. This could delay completion of clinical trials, require the conduct of bridging clinical trials or the repetition of one or more clinical trials, increase clinical trial costs, delay approval of our product candidates and jeopardize our ability to commence sales and generate revenue.

We may not be successful in our efforts to increase our pipeline of product candidates, including by pursuing additional indications for our current product candidate or in-licensing or acquiring additional product candidates for other dermatological conditions.

A key element of our strategy is to build and expand our pipeline of product candidates, including by developing VP-102 for the treatment of common warts and external genital warts and potentially other dermatological conditions and VP-103 for the treatment of plantar warts. In addition, we intend to in-license or acquire additional product candidates for other dermatological conditions to build a fully integrated dermatology company. We may not be able to identify or develop product candidates that are safe, tolerable and effective. Even if we are successful in continuing to build our pipeline, the potential product candidates that we identify, in-license or acquire may not be suitable for clinical development, including as a result of being shown to have harmful side effects or other characteristics that indicate that they are unlikely to be products that will receive marketing approval and achieve market acceptance.

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 development programs and product candidates that we identify for specific indications. As such, we are currently primarily focused on the development of VP-102 for the treatment of molluscum, common warts and external genital warts, as well as VP-103 for the treatment of plantar warts. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications for VP-102 and VP-103 that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future 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.

The regulatory approval processes of the FDA and comparable foreign authorities are lengthy, time consuming and inherently unpredictable. If we are not able to obtain required regulatory approval for our product candidates, our business will be substantially harmed.

The time required to obtain approval or other marketing authorizations by the FDA and comparable foreign authorities is unpredictable but typically takes many years following the commencement of clinical trials and depends upon numerous factors, including the substantial discretion of the regulatory authorities. In addition, approval policies, regulations, or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development and may vary among jurisdictions. We have not obtained regulatory approval for VP-102 or any product candidate and it is possible that neither VP-102 nor any product candidates we may seek to develop in the future will ever obtain regulatory approval. Neither we nor any future collaborator is permitted to market VP-102 or any future drug product candidates in the United States until we receive regulatory approval of an NDA from the FDA. To date, we have not met or discussed with the European Medicines Agency or any other comparable foreign authority regarding regulatory approval for VP-102 or any other product candidate outside of the United States.

Prior to obtaining approval to commercialize VP-102 and any other drug product candidate in the United States or abroad, we must demonstrate with substantial evidence from well-controlled clinical trials, and to the satisfaction of the FDA or foreign regulatory agencies, that such product candidates are safe and effective for their intended uses. Results from nonclinical studies and clinical trials can be interpreted in different ways. Even if we believe the nonclinical or clinical data for our product candidates are promising, such data may not be sufficient to support approval by the FDA and other regulatory authorities. The FDA may also require us to conduct additional nonclinical studies or clinical trials for our product candidates either prior to or after approval, or it may object to elements of our clinical development program.

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

We have invested a significant portion of our time and financial resources in the development of VP-102. Our business is dependent on our ability to successfully complete preclinical and clinical development of, obtain regulatory approval for, and, if approved, successfully commercialize VP-102 and any future product candidates in a timely manner.

Even if we eventually complete clinical testing and receive approval of an NDA or foreign marketing application for VP-102 or any future product candidates, the FDA or the applicable foreign regulatory agency may grant approval or other marketing authorization contingent on the performance of costly additional clinical trials, including post-market clinical trials. The FDA or the applicable foreign regulatory agency also may approve or authorize for marketing a product candidate for a more limited indication or patient population that we originally request, and the FDA or applicable foreign regulatory agency may not approve or authorize the labeling that we believe is necessary or desirable for the successful commercialization of a product candidate. Any delay in obtaining, or inability to obtain, applicable regulatory approval or other marketing authorization would delay or prevent commercialization of that product candidate and would materially adversely impact our business and prospects.

In addition, the FDA and other regulatory authorities may change their policies, issue additional regulations or revise existing regulations, or take other actions, which may prevent or delay approval of our future products under development on a timely basis. Such policy or regulatory changes could impose additional requirements upon us that could delay our ability to obtain approvals, increase the costs of compliance or restrict our ability to maintain any marketing authorizations we may have obtained.

Furthermore, even if we obtain regulatory approval for VP-102 and any future product candidates, we will still need to develop a commercial organization, establish a commercially viable pricing structure and obtain approval for adequate reimbursement from third-party and government payors. If we are unable to successfully commercialize VP-102 and any future product candidates, we may not be able to generate sufficient revenue to continue our business.

Risks Related to the Commercialization of Our Product Candidates

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

If any of our product candidates receives marketing approval, it may nonetheless fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. If our product candidates do not achieve an adequate level of acceptance, we may not generate significant revenue and we may not become profitable. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on a number of factors, including:

- the efficacy, safety and potential advantages compared to alternative treatments, including for VP-102, compared to compounded cantharidin;
- our ability to offer our products for sale at competitive prices;
- the convenience and ease of administration compared to alternative treatments, including compounded cantharidin;
- the willingness of the target patient population to try new treatments and of physicians to prescribe these treatments;
- our ability to hire and retain a sales force in the United States;
- the strength of marketing and distribution support;
- the availability of third-party coverage and adequate reimbursement for VP-102 and any other potential product candidates;
- the prevalence and severity of any side effects; and
- any restrictions on the use of our products together with other medications.

In the case of VP-102, the failure of healthcare professionals or patients to perceive the benefits of using VP-102 instead of compounded cantharidin or other alternative therapies, such as curettage or cryotherapy, would adversely affect the commercial success of VP-102, if approved.

If we are unable to establish sales, marketing and distribution capabilities for VP-102 or any other product candidate that may receive regulatory approval, we may not be successful in commercializing those product candidates if and when they are approved.

We do not have sales or marketing infrastructure. To achieve commercial success for VP-102 and any other product candidate for which we may obtain marketing approval, we will need to establish a sales and marketing organization. In the future, we expect to build a focused sales and marketing infrastructure to market or co-promote some of our product candidates in the United States, if and when they are approved. There are risks involved with establishing our own sales, marketing and distribution capabilities. 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 products on our own include:

- our inability to recruit, train and retain adequate numbers of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to physicians or educate adequate numbers of physicians on the benefits of prescribing any future products;
- the lack of complementary products to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines; and
- unforeseen costs and expenses associated with creating an independent sales and marketing organization.

If we are unable to establish our own sales, marketing and distribution capabilities and are forced to enter into arrangements with, and rely on, third parties to perform these services, our revenue and our profitability, if any, are likely to be lower than if we had developed such capabilities ourselves. In addition, we may not be successful in entering into arrangements with third parties to sell, market and distribute our product candidates or may be unable to do so on terms that are favorable to us. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we 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 our product candidates.

We face substantial competition, including from compounded cantharidin products that may compete with VP-102 and any other product candidates, which may result in a smaller than expected commercial opportunity and/or others discovering, developing or commercializing products before or more successfully than we do.

The development and commercialization of new products is highly competitive. We face competition with respect to our current product candidates and will face competition with respect to any product candidates that we may seek to develop or commercialize in the future, from many different sources, including major pharmaceutical and specialty pharmaceutical companies, compounding facilities, academic institutions and governmental agencies and public and private research institutions.

We are aware of several other product candidates in earlier stages of development as potential treatments for the indications we intend to target. Veloce Biopharma, Leo Pharma, and Novan have initiated clinical trials with different programs in molluscum. There are a number of other companies developing products for common warts, including Aclaris Therapeutics, or Aclaris. Aclaris has conducted late-stage clinical trials and is pursuing FDA approval for its product candidate for the treatment of common warts. In addition, other drugs have been and may continue to be used off label as treatment for molluscum, common warts, external genital warts, and plantar warts, and there are other existing alternative therapies such as curettage or cryotherapy.

In addition, some of the market demand for cantharidin may be satisfied by compounding pharmacies and registered outsourcing facilities regulated under Sections 503A and 503B of the FDCA. If we receive approval for VP-102, any compounding by licensed pharmacists or licensed physicians under Section 503A would not be legally permitted to include, regularly or in inordinate amounts, the compounding of any drug that is essentially a copy of VP-102. The FDA has announced that it intends to consider a compounded drug product to be essentially a copy of a commercially available drug under Section 503A if it has the same API, has the same, similar, or an easily substitutable dosage strength, and can be used by the same route of administration. However, a compounded product would not be considered essentially a copy of VP-102, and could be compounded under Section 503A, if there were a difference between the compounded product and VP-102 that was made for an individual patient, and which the prescribing practitioner determines produces a significant difference for that patient. Similarly, any compounding by outsourcing facilities under Section 503B would not be legally permitted to include the compounding of a drug that is essentially a copy of VP-102, if approved, where the compounded drug would be considered essentially a copy if it were identical or nearly identical to VP-102 (which the FDA has interpreted to mean that it has the same active ingredient(s), route of administration, dosage form, dosage strength and excipients as the approved drug), or if it contains the active ingredient in VP-102 (cantharidin), unless there is a change from the approved drug that produces a clinical difference for an individual patient as determined by the prescribing practitioner.

Compounding pharmacies and registered outsourcing facilities may therefore be permitted to compound cantharidin drug products, even if we receive approval for VP-102, if a prescribing practitioner determines that a compounded product prescribed for a specific patient features a change from VP-102 that produces a significant difference for the patient (under Section 503A), or if a prescribing practitioner determines that a compounded cantharidin product features a change from VP-102 that produces a clinical difference for the patient (under Section 503B). Physicians may determine that such differences exist for some or all of their patients and may choose to prescribe compounded cantharidin products for such patients. Moreover, under Section 503B, outsourcing facilities are not limited to compounding in response to prescriptions for identified, individual patients, and could compound using bulk cantharidin provided cantharidin appears on a list established by the FDA of bulk drug substances for which there is a clinical need or satisfies certain other limited conditions. Although the FDA has not yet established a list of bulk drug substances for which there is a clinical need, the FDA has announced an interim policy pursuant to which bulk drug substances may be nominated for inclusion on such list and, provided certain conditions are met, outsourcing facilities may compound with such bulk drug substances pending evaluation of the substances for inclusion on the FDA's list of bulk drug substances for which there is a clinical need. Cantharidin is currently listed among those nominated substances for which bulk drug substance may be used in compounding by outsourcing facilities pending FDA's evaluation.

In March 2019, the FDA issued Guidance for Industry addressing the criteria by which the FDA intends to evaluate whether there exists a clinical need for compounding with a bulk drug substance, including, in the case of a bulk drug substance that is a component of an FDA-approved drug, an evaluation of whether there exists an attribute of the approved drug that makes it medically unsuitable to treat certain patients; whether the drug product proposed to be compounded is intended to address that attribute; and whether the drug product proposed to be compounded must be compounded from a bulk drug substance rather than from the finished, FDA-approved drug product. If the FDA implements these criteria as in the Guidance for Industry, and if VP-102 is approved, an outsourcing facility may be permitted to compound a cantharidin product using bulk cantharidin notwithstanding our approval provided it satisfies these and other criteria set forth in the FDA's guidance.

In addition, the FDA may, in its enforcement discretion, not prioritize enforcement of the restrictions under Sections 503A and 503B on compounding drugs that are essentially copies of VP-102, if approved, in which case compounded drug product that is essentially a copy of VP-102 could be made available to physicians and their patients. In the event compounders are authorized to continue to compound cantharidin products following approval of VP-102, if approved, we could be subject to significant competition.

In addition, our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than VP-102 or any other product that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for our product, which could result in our competitors establishing a strong market position before we are able to enter the market or, if a competitor obtained FDA approval for a product containing cantharidin before we are able to obtain approval for our product, could result in the approval of our product being delayed until the expiration of any NCE exclusivity or other regulatory exclusivity received by such competitor.

Many of the companies against which we are competing, or against which we may compete in the future, have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than we do. 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 or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or that may be necessary for, our programs.

We intend to seek NCE exclusivity and/or pediatric exclusivity for VP-102 and future product candidates, and we may be unsuccessful.

As part of our business strategy, we intend to seek NCE exclusivity for VP-102 or future product candidates. In the United States, a pharmaceutical manufacturer may obtain five years of non-patent exclusivity upon NDA approval of an NCE which is a drug that contains an active moiety that has not been approved by the FDA in any other NDA. An “active moiety” is defined as the molecule or ion responsible for the drug substance’s physiological or pharmacologic action. During the five-year exclusivity period, the FDA cannot accept for filing any ANDA seeking approval of a generic version of that drug or any 505(b)(2) NDA for the same active moiety and that relies on the FDA’s findings regarding that drug, except that FDA may accept an application for filing after four years if the follow-on applicant makes a paragraph IV certification. This exclusivity period may be extended by an additional six months if certain requirements are met to qualify the product for pediatric exclusivity, including the receipt of a written request from the FDA that we conduct certain pediatric studies, the submission of study reports from such studies to the FDA after receipt of the written request and satisfaction of the conditions specified in the written request. We believe that cantharidin constitutes an NCE, such that VP-102 should, if approved, be eligible for NCE exclusivity and that our planned clinical trials will qualify VP-102 for pediatric exclusivity if a written request from the FDA is received. However, there can be no guarantee that we will successfully obtain such exclusivity, and if any of our competitors obtains FDA approval of an NDA for a cantharidin drug product before we do, they, and not us, may be eligible for NCE exclusivity. If we do not obtain NCE exclusivity for VP-102, or if a competitor obtains NCE exclusivity for a cantharidin product before we receive approval of an NDA for VP-102, our ability to commence sales and generate revenue would be adversely affected.

Moreover, even if we obtain NCE exclusivity and/or pediatric exclusivity for VP-102, such exclusivity would not block the sale of compounded cantharidin products in those situations where compounding would be permitted under Sections 503A or 503B of the FDCA.

The success of VP-102 for the treatment of molluscum and common warts will depend significantly on coverage and adequate reimbursement or the willingness of patients to pay for these procedures.

We believe our success depends on continued coverage and adequate reimbursement for procedures using VP-102 for the treatment of molluscum and/or common warts or, in the absence of coverage and adequate reimbursement, on the extent to which patients will be willing to pay out of pocket for such procedures. Obtaining coverage and adequate reimbursement for our products may be particularly difficult because of the higher prices often associated with drugs administered under the supervision of a physician. Separate reimbursement for the product itself or the treatment or procedure in which our product is used may not be available. Even if the procedure using our product is covered, third-party payors may package the cost of the drug into the procedure payment and not separately reimburse the physician for the costs associated with our product. A decision by a third-party payor

not to cover or separately reimburse for our products could reduce physician utilization of our products once approved. Additionally, in the United States, there is no uniform policy of coverage and reimbursement among third-party payors. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own coverage and reimbursement policies. However, decisions regarding the extent of coverage and amount of reimbursement to be provided is made on a payor-by-payor basis. One payor's determination to provide coverage for a drug product does not assure that other payors will also provide coverage, and adequate reimbursement.

Third-party payors determine which medical procedures they will cover and establish reimbursement levels. Even if a third-party payor covers a particular procedure, the resulting reimbursement payment rates may not be adequate. Patients who are treated in-office for a medical condition generally rely on third-party payors to reimburse all or part of the costs associated with the procedure and may be unwilling to undergo such procedures for the treatment of molluscum and/or common warts in the absence of such coverage and adequate reimbursement. Physicians may be unlikely to offer procedures for such treatment if they are not covered by insurance and may be unlikely to purchase and use our product candidates, if approved, for molluscum and/or common warts unless coverage is provided, and reimbursement is adequate.

Reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that a procedure is safe, effective and medically necessary; appropriate for the specific patient; cost-effective; supported by peer-reviewed medical journals; included in clinical practice guidelines; and neither cosmetic, experimental, nor investigational.

Further, from time to time, typically on an annual basis, payment rates are updated and revised by third-party payors. Such updates could impact the demand for our product candidates, to the extent that patients who are prescribed our product candidates, if approved, are not separately reimbursed for the cost of the product candidates. An example of payment updates is the Medicare program updates to physician payments, which is done on an annual basis. In the past, when the application of the formula resulted in lower payment, Congress has passed interim legislation to prevent the reductions. The Medicare Access and CHIP Reauthorization Act of 2015, or MACRA, ended the use of the statutory formula and also referred to as the Sustainable Growth Rate, for certain payment and established a quality payment incentive program, also referred to as the Quality Payment Program. This program provides clinicians with two ways to participate, including through the Advanced Alternative Payment Models, or APMs and the Merit-based Incentive Payment System, or MIPS. In November 2019, CMS issued a final rule finalizing the changes to the Quality Payment Program. At this time, it is unclear how the introduction of the Quality Payment Program will impact overall physician reimbursement under the Medicare program. Any resulting decrease in payment under the merit-based reimbursement system may adversely affect our revenue and results of operations. In addition, the Medicare physician fee schedule has been adapted by some private payors into their plan-specific physician payment schedule. We cannot predict how pending and future healthcare legislation will impact our business, and any changes in coverage and reimbursement that further restricts coverage of our product candidates or lowers reimbursement for procedures using our products could harm our business.

Foreign governments also have their own healthcare reimbursement systems, which vary significantly by country and region, and we cannot be sure that coverage and adequate reimbursement will be made available with respect to the treatments in which our products are used under any foreign reimbursement system.

There can be no assurance that VP-102 for the treatment of molluscum and/or common warts, if approved for sale in the United States or in other countries, will be considered medically reasonable and necessary, that they will be considered cost-effective by third-party payors, that coverage or an adequate level of reimbursement will be available, or that reimbursement policies and practices in the United States and in foreign countries where our products are sold will not adversely affect our ability to sell our product candidates profitably, if they are approved for sale.

The market for VP-102 and any other product candidates may not be as large as we expect.

Our lead indications for VP-102 are for molluscum and common warts, both of which are skin diseases that are currently undertreated with no standard of care. If VP-102 is approved for either indication, individuals may continue to decline treatment for molluscum and/or common warts as, if left untreated, these skin diseases will eventually be resolved by the body's immune system.

In addition, our estimates of the potential market opportunity for VP-102 and any other product candidates include several key assumptions based on our industry knowledge, industry publications, third-party research reports and surveys of dermatologists commissioned by us. These assumptions include the prevalence of molluscum, common warts and other skin diseases as well as the estimated reimbursement levels for VP-102, if approved. However, there can be no assurance that any of these assumptions are, or will remain, accurate. Furthermore, even if our estimates relating to the prevalence of molluscum, common warts and other skin diseases as well as the estimated reimbursement levels for VP-102, if approved, are accurate, the degree of market acceptance by the medical community and those infected by such skin diseases following regulatory approval, if any, could impact our assumptions and reduce the market size for VP-102 in molluscum, common warts or any other indication. For example, if VP-102 is approved for either molluscum or common warts, there can be no assurance that the medical community will prescribe VP-102 for patients over current forms of available alternative therapies. Furthermore, the market research study we commissioned surveying payor organizations has no bearing on the payors, and any assumptions or interpretations based on the results of this study, may ultimately be inaccurate. If the actual market for VP-102 in molluscum, common warts or any other indication we may pursue for VP-102 or for any other product candidate we may develop is smaller than we expect, our revenues, if any, may be limited and it may be more difficult for us to achieve or maintain profitability.

Product liability lawsuits against us could cause us to incur substantial liabilities and to limit commercialization of any products 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 if we commercially sell any products that we may develop. If we cannot successfully defend ourselves against claims that our product candidates or drugs caused injuries, we will incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidates or drugs that we may develop;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- significant costs to defend the related litigation;
- substantial monetary awards paid to trial participants or patients;
- loss of revenue;
- reduced resources of our management to pursue our business strategy; and
- the inability to commercialize any products that we may develop.

We currently hold \$10 million in product liability insurance coverage in the aggregate, with a per incident limit of \$10 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 if we commence commercialization of our product candidates. 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.

Our business activities involve the use of hazardous materials, which require compliance with environmental and occupational safety laws regulating the use of such materials. If we or our vendors violate these laws, we could be subject to significant fines, liabilities or other adverse consequences.

Our business activities involve the controlled use of hazardous materials, including corrosive, explosive and flammable chemicals and other hazardous compounds in addition to certain biological hazardous waste. Ultimately, the activities of our third-party product manufacturers when a product candidate reaches commercialization will also require the use of hazardous materials. Accordingly, we are subject to federal, state and local laws governing the use, handling and disposal of these materials. For example, cantharidin is classified as an extremely hazardous substance in the United States and is subject to strict reporting requirements. Furthermore, the excipients in our product candidate are combustible and flammable. If not handled properly, there is a risk of explosion which could carry liability risk and affect the availability or capacity of the affected vendor. Although we believe that our and our vendors' safety procedures for handling and disposing of these materials comply in all material respects with the standards prescribed by local, state and federal regulations, we cannot completely eliminate the risk of accidental contamination or injury from these materials. In addition, our collaborators may not comply with these laws. In the event of an accident or failure to comply with environmental laws, we could be held liable for damages that result, and any such liability could exceed our assets and resources, or we could be subject to limitations or stoppages related to our use of these materials which may lead to an interruption of our business operations or those of our third-party contractors. While we believe that our existing insurance coverage is generally adequate for our normal handling of these hazardous materials, it may not be sufficient to cover pollution conditions or other extraordinary or unanticipated events. Furthermore, an accident could damage or force us to shut down our operations or one of our vendors. Changes in environmental laws may impose costly compliance requirements on us or otherwise subject us to future liabilities and additional laws relating to the management, handling, generation, manufacture, transportation, storage, use and disposal of materials used in or generated by the manufacture of our products or related to our clinical trials. In addition, we cannot predict the effect that these potential requirements may have on us, our suppliers and contractors or our customers.

Our business and operations would suffer in the event of computer system failures, cyber-attacks or a deficiency in our cyber-security.

Despite the implementation of security measures, our internal computer systems, and those of third parties on which we rely, are vulnerable to damage from computer viruses, malware, natural disasters, terrorism, war, telecommunication and electrical failures, cyber-attacks or cyber-intrusions over the Internet, attachments to emails, persons inside our organization, or persons with access to systems inside our organization. The risk of a security breach or disruption, particularly through cyber-attacks or cyber intrusion, including by computer hackers, foreign governments, and cyber terrorists, has generally increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our product development programs. 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 material legal claims and liability, damage to our reputation, and the further development of our product candidates could be delayed.

Risks Related to Our Dependence on Third Parties

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

We have engaged a CRO historically to conduct our clinical trials and expect to engage a CRO for future clinical trials for VP-102 or other product candidates that we may progress to clinical development. We expect to continue to rely on third parties, such as clinical data management organizations, medical institutions and clinical investigators, to conduct those clinical trials. If any of our relationships with these third parties terminate, we may not be able to timely enter into arrangements with alternative third parties or to do so on commercially reasonable terms, if at all. In addition, any third parties conducting our clinical trials will not be our employees, and except for remedies available to us under our agreements with such third parties, we cannot control whether or not they devote sufficient time and resources to our clinical programs. If these third parties do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy

of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols, regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to obtain regulatory approval for or successfully commercialize our product candidates. Consequently, our results of operations and the commercial prospects for our product candidates would be harmed, our costs could increase substantially and our ability to generate revenue could be delayed significantly.

Switching or adding CROs involves substantial cost and requires management time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines. Though we intend to carefully manage our relationships with our CROs, there can be no assurance that we will not encounter challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects.

We rely on these parties for execution of our preclinical studies and clinical trials, and generally do not control their activities. Our reliance on these third parties for research and development activities will reduce our control over these activities but will not relieve us of our responsibilities. For example, we will 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 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. We also are required to register ongoing clinical trials and post the results of completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within specified timeframes. Failure to do so can result in fines, adverse publicity and civil and criminal sanctions. If we or any of our CROs or other third parties, including trial sites, fails to comply with applicable GCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA, EMA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of our clinical trials complies with GCP regulations. In addition, our clinical trials must be conducted with product produced under cGMP conditions. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process.

In addition, 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. The FDA may conclude that a financial relationship between us and a principal investigator has created a conflict of interest or otherwise affected interpretation of the trial. The FDA 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 and may ultimately lead to the denial of marketing approval of VP-102 and any other product candidates.

We also expect 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 revenue.

We currently rely on a third party to supply our raw material used in VP-102, and if we encounter any extended difficulties in procuring, or creating an alternative for, our raw material in VP-102 or any of our other product candidates we may develop, our business operations would be impaired.

To date, we have obtained naturally-sourced cantharidin, which is the raw material used to manufacture the API for VP-102 and is obtained from blister beetles, directly or indirectly from suppliers based in the People's Republic of China, or the PRC. We are exposed to a number of environmental risks, including:

- risk of contamination being introduced in the beetle population through environmental factors that we cannot control, which would result in unexpected anomalies or new impurities in the cantharidin;
- loss of the beetle's habitat and other similar environmental risks to the beetle population whether due to climate change, over-development, or otherwise; and
- risk of disease in the beetles.

In addition, any business, public health or economic challenges our existing supplier faces, whether in the ordinary course or not, could impair its ability to meet our cantharidin supply needs. For instance, in December 2019, a novel strain of COVID-19 was reported to have surfaced in Wuhan, China. The extent to which COVID-19 impacts supplies of our product will depend on future developments, which are highly uncertain and cannot be predicted, including new information which may emerge concerning the severity of COVID-19 and the actions to contain COVID-19 or treat its impact, among others. Accordingly, there is a risk that supplies of our product may be significantly delayed by or may become unavailable for an extended period of time as a result of any issues affecting our supplier's supply and production of naturally-sourced cantharidin.

Furthermore, our supplier's operations may be curtailed or delayed in the event the regulators in the PRC determine that our supplier is not acting in accordance with laws or under appropriate permits or licenses. We may also face additional supply chain risks due to the regulatory and political structure of the PRC, or as a result of the international relationship between the PRC and the United States or any of the other countries in which our products are marketed. For example, any deterioration in the trade relationship between the U.S. and China, which imposes any restrictions, tariffs or limitations on the export of cantharidin from China would impact our ability to meet our raw material needs. We are also exposed to foreign exchange risks, and fluctuations in exchange rates between the U.S. dollar and the Renminbi could negatively impact the commercial viability of importing cantharidin from the PRC.

While we have successfully developed a lab scale process for synthesizing the cantharidin molecule, there is risk that we will be unable to scale the process to produce a sufficient quantity of synthetically derived cantharidin to meet our needs and, even if we are ultimately able to scale the proposed process successfully, we cannot predict when we will be able to do so. If we are unable to scale the developed process for manufacturing cantharidin synthetically to a satisfactory commercial scale, we may be forced to continue to rely on naturally sourced cantharidin.

Any extended difficulties we face in maintaining our supply of cantharidin, or limitations we face in increasing our supply to meet commercial needs for VP-102 or any of our other product candidates, whether such cantharidin is naturally sourced or synthetically derived, would impair our business operations.

COVID-19 could adversely impact our business.

In December 2019, a novel strain of coronavirus, COVID-19, was reported to have surfaced in Wuhan, China. Since then, COVID-19 has spread to multiple countries, including the United States and several European countries. If COVID-19 continues to spread in the United States, we may experience disruptions that could severely impact our business, supply chain and clinical trials, including:

- delays or inability to obtain raw material, ingredients, or components;
- delays or difficulties in enrolling patients in our clinical trials;

- delays or difficulties in clinical site initiation, including difficulties in recruiting clinical site investigators and clinical site staff;
- diversion of healthcare resources away from the conduct of clinical trials, including the diversion of hospitals serving as our clinical trial sites and hospital staff supporting the conduct of our clinical trials;
- interruption of key clinical trial, process validation, or launch preparation activities, such as clinical trial site monitoring, due to limitations on travel or access to third-party facilities imposed or recommended by federal or state governments, employers, suppliers, and others;
- delays in review of regulatory filings by regulatory authorities; and
- limitations in employee resources that would otherwise be focused on the conduct of our preclinical studies and clinical trials, including because of sickness of employees or their families or the desire of employees to avoid contact with large groups of people.

The global outbreak of COVID-19 continues to rapidly evolve. The extent to which the COVID-19 may impact our business, supply chain, clinical trials and regulatory filings will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the outbreak, travel restrictions and social distancing in the United States and other countries, business closures or business disruptions and the effectiveness of actions taken in the United States and other countries to contain and treat the disease.

We contract with third parties for the manufacture of VP-102 for preclinical and clinical testing and expect to continue to do so for commercialization. This reliance on third parties increases the risk that we will not have sufficient quantities of VP-102 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 or personnel. We currently rely, and expect to continue to rely, on third parties for the manufacture of VP-102, or any other product candidates which we may pursue, for preclinical and clinical testing as well as for commercial manufacture if VP-102 or any other product candidate which we may pursue receives marketing approval. This reliance on third parties increases the risk that we will not have sufficient quantities of VP-102 or be able to obtain 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 also expect to rely on third-party manufacturers or third-party collaborators for the manufacture of commercial supply of VP-102 or any other product candidates for which we obtain marketing approval. The facilities used by our contract manufacturers to manufacture our product candidates must be approved by the FDA or other regulatory authorities pursuant to inspections that will be conducted prior to approval of our NDA, if at all, and in the future of additional NDAs or comparable marketing application to the FDA or other regulatory authority. We do not have control over a supplier's or manufacturer's compliance with laws, regulations and applicable cGMP standards and other laws and regulations, such as those related to environmental health and safety matters. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or others, they will not be able to secure and maintain regulatory approval for their manufacturing facilities. In addition, 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 manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates, if approved.

We may be unable to establish any agreements with future third-party manufacturers or to do so on acceptable terms. Even if we are able to establish agreements with third-party manufacturers, qualifying and validating such

manufacturers may take a significant period of time and reliance on third-party manufacturers entails additional risks, including:

- reliance on the third party for regulatory compliance and quality assurance;
- the possible breach of the manufacturing agreement by the third party;
- the possible misappropriation of our proprietary information, including our trade secrets and know-how;
- the possible increase in costs for the applicator components, raw materials or API in VP-102; and
- the possible termination or nonrenewal of any agreement by any third party at a time that is costly or inconvenient for us.

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 clinical holds, fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates or drugs, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our products.

Our product candidates and any drugs that we may develop may compete with other product candidates and drugs for access to manufacturing facilities. There are no assurances we would be able to enter into similar commercial arrangements with other 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.

To date, all assembly of our single-use precision applicators has been done using manual processes. In order to meet anticipated volume requirements, we will need to successfully validate our proposed automated assembly process as designed. If our current contract manufacturers cannot perform as agreed, we may be required to replace such manufacturers. We may incur added costs and delays in identifying and qualifying any such replacement. We expect to continue to depend on third-party contract manufacturers for the foreseeable future. Our current and anticipated future dependence upon others for the manufacture of our product candidates or drugs may adversely affect our future profit margins and our ability to commercialize any drugs that receive marketing approval on a timely and competitive basis. If there is any disruption in our supply chain, it could take a significant period of time to qualify and validate a replacement on terms acceptable to us, if we are able to at all.

We may seek collaborations with third parties for the development or commercialization of our product candidates. If those collaborations are not successful, we may not be able to capitalize on the market potential of these product candidates.

We may seek third-party collaborators for the development and commercialization of our product candidates, including for the commercialization of any of our product candidates that are approved for marketing outside the United States. Our likely collaborators for any collaboration arrangements include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. If we do enter into any such 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 our 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.

Collaborations involving our product candidates would pose the following risks to us:

- collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- collaborators may not perform their obligations as expected;
- collaborators may not pursue development and commercialization of any product candidates that achieve regulatory approval or may elect not to continue or renew development or commercialization

programs based on clinical trial results, changes in the collaborators' strategic focus or available funding, or external factors, such as an acquisition, that divert resources or create competing priorities;

- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates 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;
- product candidates discovered in collaboration with us may be viewed by our collaborators as competitive with their own product candidates or drugs, which may cause collaborators to cease to devote resources to the commercialization of our product candidates;
- a collaborator with marketing and distribution rights to one or more of our product candidates that achieve regulatory approval may not commit sufficient resources to the marketing and distribution of such products;
- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation or the preferred course of development, might cause delays or termination of the research, development or commercialization of product candidates, might lead to additional responsibilities for us with respect to product candidates, or might result in litigation or arbitration, any of which would be time-consuming and expensive;
- collaborators may not properly maintain or defend our 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;
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability; and
- collaborations may be terminated for the convenience of the collaborator and, if terminated, we could be required to raise additional capital to pursue further development or commercialization of the applicable product candidates.

Collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner or at all. If a present or future collaborator of ours were to be involved in a business combination, the continued pursuit and emphasis on our product development or commercialization program could be delayed, diminished or terminated.

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

Our product development programs and the potential commercialization of our product candidates will require substantial additional capital. For some of our product candidates, we may decide 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 such product candidate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional 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 them to market and generate revenue.

Risks Related to Our Intellectual Property

If we are unable to obtain or protect intellectual property rights related to any of our product candidates, we may not be able to compete effectively in our market.

We plan to rely upon a combination of patents, trade secret protection, and confidentiality agreements to protect the intellectual property related to our product candidates. The issuance, scope, validity, enforceability, strength, and commercial value of patents in the pharmaceutical field involves complex legal and scientific questions and can be uncertain. We currently have one issued patent, and the patent applications that we own may fail to result in other issued patents with claims that cover the product candidates in the United States or in foreign jurisdictions. If this were to occur, early generic competition could be expected against our product candidates in development. There may be relevant prior art relating to our future patents and patent applications which could invalidate a patent or prevent a patent from issuing based on a pending patent application. In particular, because the API in many of our product candidates has been available and used for many years, it is possible that these products have previously been used in such a manner that such prior usage would affect our ability to obtain patents based on our patent applications. Moreover, because numerous parties have developed and/or commercialized, or are developing, a wide variety of applicator devices for use with topical dermatological medications, it is possible that prior art related to applicator devices could affect our ability to obtain patent protection for our planned product applicator device or that disputes may arise related to whether third-party applicator devices infringe patents we have applied for.

The patent prosecution process is expensive and time-consuming. We may not be able to prepare, file, and prosecute all necessary or desirable patent applications for a commercially reasonable cost or in a timely manner or in all jurisdictions. It is also possible that we may fail to identify patentable aspects of inventions made in the course of development and commercialization activities before it is too late to obtain patent protection on them. Moreover, depending on the terms of any future in-licenses to which we may become a party, we may not have the right to control the preparation, filing, and prosecution of patent applications, or to maintain the patents, covering technology in-licensed from third parties. Therefore, these patents and patent applications may not be prosecuted and enforced in a manner consistent with the best interests of our business.

In addition to the protection we hope to receive from patents we have applied for, we rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable, processes for which patents are difficult to enforce and any other elements of our drug development and reformulation processes that involve proprietary know-how, information, or technology that is not covered by patents. Although we generally require all of our employees to assign their inventions to us, and all of our employees, consultants, advisors, and any third parties who have access to our proprietary know-how, information, or technology to enter into confidentiality agreements, we cannot provide any assurances that all such agreements have been duly executed, or that our trade secrets and other confidential proprietary information will not be disclosed. Moreover, our competitors may independently develop knowledge, methods 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 it, 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 also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures may be breached, and we may not have adequate remedies for any breach. Also, if the steps taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating the trade secret. In addition, others may independently discover our trade secrets and proprietary information. For example, the FDA is considering whether to make additional information publicly available on a routine basis, including information that we may consider to be trade secrets or other proprietary information, and it is not clear at the present time how the FDA's disclosure policies may change in the future. If we are unable to prevent material disclosure of the non-patented intellectual property related to our technologies to third parties, and there is no guarantee that we will have any such enforceable trade secret protection, we may not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, results of operations and financial condition.

We may enjoy only limited geographical protection with respect to certain patents and we may not be able to protect our intellectual property rights throughout the world.

Filing and prosecuting patent applications and defending patents covering our product candidates in all countries throughout the world would be prohibitively expensive. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we have patent protection, but enforcement rights are not as strong as that in the United States or Europe. These products may compete with our product candidates, and our current and future patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

In addition, we may decide to abandon national and regional patent applications before grant. The examination of each national or regional patent application is an independent proceeding. As a result, patent applications in the same family may issue as patents in some jurisdictions, such as in the United States, but may issue as patents with claims of different scope or may even be refused in other jurisdictions. It is also quite common that depending on the country, the scope of patent protection may vary for the same product candidate or technology.

While we intend to protect our intellectual property rights in our expected significant markets, we cannot ensure that we will be able to initiate or maintain similar efforts in all jurisdictions in which we may wish to market our product candidates. Accordingly, our efforts to protect our intellectual property rights in such countries may be inadequate, which may have an adverse effect on our ability to successfully commercialize our product candidates in all of our expected significant foreign markets. If we encounter difficulties in protecting, or are otherwise precluded from effectively protecting, the intellectual property rights important for our business in such jurisdictions, the value of these rights may be diminished, and we may face additional competition from others in those jurisdictions.

The laws of some jurisdictions do not protect intellectual property rights to the same extent as the laws or rules and regulations in the United States and Europe, and many companies have encountered significant difficulties in protecting and defending such rights in such jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets, and other intellectual property rights, which could make it difficult for us to stop the infringement of our future patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in other jurisdictions, whether or not successful, could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our future patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing as patents, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Some countries also have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, some countries limit the enforceability of patents against government agencies or government contractors. In those countries, the patent owner may have limited remedies, which could materially diminish the value of such patents. If we are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired.

Recent patent reform legislation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our future patents.

Our ability to obtain patents is highly uncertain because, to date, some legal principles remain unresolved, there has not been a consistent policy regarding the breadth or interpretation of claims allowed in patents in the United States and the specific content of patents and patent applications that are necessary to support and interpret patent claims is highly uncertain due to the complex nature of the relevant legal, scientific, and factual issues. Changes in either patent laws or interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property or narrow the scope of our patent protection.

For 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 United States patent law. These include provisions that affect the way patent applications will be prosecuted and may also affect patent litigation. The United States Patent and Trademark Office, or USPTO, has developed new and untested regulations and procedures to govern the full implementation 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 in March 2013. The Leahy-Smith Act has also introduced procedures making it easier for third parties to challenge issued patents, as well as to intervene in the prosecution of patent applications. Finally, the Leahy-Smith Act contains new statutory provisions that require the USPTO to issue new regulations for their implementation, and it may take the courts years to interpret the provisions of the new statute. It is too early to tell what, if any, impact the Leahy-Smith Act will have on the operation of our business and the protection and enforcement of our intellectual property. However, 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 future patents. Further, the U.S. 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. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on actions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce patents that we have owned or licensed or that we might obtain in the future. An inability to obtain, enforce, and defend patents covering our proprietary technologies would materially and adversely affect our business prospects and financial condition.

Similarly, changes in patent laws and regulations in other countries or jurisdictions or changes in the governmental bodies that enforce them or changes in how the relevant governmental authority enforces patent laws or regulations may weaken our ability to obtain new patents or to enforce patents that we may obtain in the future. Further, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. For example, if the issuance to us, in a given country, of a patent covering an invention is not followed by the issuance, in other countries, of patents covering the same invention, or if any judicial interpretation of the validity, enforceability, or scope of the claims, or the written description or enablement, in a patent issued in one country is not similar to the interpretation given to the corresponding patent issued in another country, our ability to protect our intellectual property in those countries may be limited. Changes in either patent laws or in interpretations of patent laws in the United States and other countries may materially diminish the value of our intellectual property or narrow the scope of our patent protection.

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

Periodic maintenance fees, renewal fees, annuity fees, and various other government fees on patents and/or applications will be due to be paid to the USPTO and various government patent agencies outside of the United States over the lifetime of our patents and/or applications and any patent rights we may obtain in the future. We rely on our outside counsel to pay these fees. The USPTO and various non-U.S. government patent agencies require compliance with several procedural, documentary, fee payment, and other similar provisions during the patent application process. We employ reputable law firms and other professionals to help us comply. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. There are situations, however, in which non-compliance can result in abandonment or lapse of the patents or patent applications, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, potential competitors might be able to enter the market, and this circumstance could harm our business.

The patent applications that we have covering our product candidates are limited to specific formulations, preparations and devices, and methods of use and manufacturing processes, and our market opportunity for our product candidates may be limited by the lack of patent protection for the active ingredient itself and by competition from other formulations and manufacturing processes, as well as administration methods that may be developed by competitors.

Cantharidin is a naturally occurring compound found in many species of blister beetles and has been used since ancient times for medicinal purposes. Therefore, the composition of matter for the chemical structure of cantharidin itself, which is the API used in our product candidates, is not eligible for patent protection. We seek to obtain patent protection for our manufacturing technology, drug administering technology and our product candidates, including specific formulations, preparations and devices, and methods of use and manufacturing processes. Although the protection afforded by our patent and patent applications may be significant with respect to VP-102, when looking at the ability of the patent and applications to block competition, the protection offered by the patent and applications may be, to some extent, more limited than the protection provided by a patent claiming the composition of matter of an entirely new chemical entity previously unknown. As a result, generic products that do not infringe the claims of our future patents covering formulations, preparations, devices, methods of use, and manufacturing processes may be available while we are marketing our products. In general, method of use patents are more difficult to enforce than composition of matter patents because, for example, of the risks that the FDA may approve alternative uses of the subject compound not covered by method of use patents, and others may engage in off-label sale or use of the subject compound. Physicians are permitted to prescribe an approved product for uses that are not described in the product's labeling. Although off-label prescriptions may infringe the method of use patents we have applied for, the practice is common across medical specialties and such infringement is difficult to prevent or prosecute. In addition, competitors who obtain the requisite regulatory approval will be able to commercialize products with the same active ingredient as our product candidates so long as the competitors do not infringe any process, use, formulation, preparation or device patents that we have applied for to protect our product candidates, subject to any regulatory exclusivity we may be able to obtain for our product candidates.

The number of patents and patent applications covering products containing the same active ingredient as our product candidates indicates that competitors have sought to develop and may seek to commercialize competing formulations that may not be covered by our patents and patent applications. The commercial opportunity for our product candidates could be significantly harmed if competitors are able to develop and commercialize alternative formulations of our product candidates that are different from ours and do not infringe our issued patents covering our product candidates, our device, our manufacturing process or uses of our product candidates.

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

Competitors may infringe the patents we have applied for. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. If we initiate legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that the patent covering our product or product candidate is invalid and/or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are common, and there are numerous grounds upon which a third party can assert invalidity or unenforceability of a patent. In an infringement proceeding, a court may decide that a patent of ours is not valid or is unenforceable or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. Third parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, post grant review, *inter partes* review (IPR), and equivalent proceedings in foreign jurisdictions (e.g., opposition proceedings). Such proceedings could result in revocation of or amendment to our patents in such a way that they no longer cover our product candidates. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we, our patent counsel, and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our product candidates. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated or interpreted narrowly, could put our patent applications at risk of not issuing and could have a material adverse impact on our business.

Interference proceedings provoked by third parties or brought by us may be necessary to determine the priority of inventions with respect to our patent applications. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Our defense of litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. We may not be able to prevent misappropriation of our intellectual property rights, particularly in countries where the laws may not protect those rights as fully as in the United States.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. There could also be public announcements of the results of hearings, motions, or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a material adverse effect on the price of our common stock.

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

As our current and future product candidates progress toward commercialization, the possibility of a patent infringement claim against us increases. There can be no assurance that our current and future product candidates do not infringe other parties' patents or other proprietary rights, and competitors or other parties may assert that we infringe their proprietary rights in any event. We may become party to, or threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our current and future product candidates, including interference or derivation proceedings before the USPTO. Even if we believe such claims are without merit, a court of competent jurisdiction could hold that these third-party patents are valid, enforceable and infringed, which could have a negative impact on our ability to commercialize VP-102 and any future product candidates. In order to successfully challenge the validity of any such U.S. patent in federal court, we would need to overcome a

presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent. Moreover, given the vast number of patents in our field of technology, we cannot be certain that we do not infringe existing patents or that we will not infringe patents that may be granted in the future. Because numerous parties have developed and/or commercialized, or are developing, a wide variety of applicator devices for use with topical dermatological medications, it is possible that third parties may assert that our applicator device infringes patents they own or have applied for. While we may decide to initiate proceedings to challenge the validity of these or other patents in the future, we may be unsuccessful, and courts or patent offices in the United States and abroad could uphold the validity of any such patent. Furthermore, because patent applications can take many years to issue and may be confidential for 18 months or more after filing, and because pending patent claims can be revised before issuance, there may be applications now pending which may later result in issued patents that may be infringed by the manufacture, use or sale of our product candidates. Regardless of when filed, we may fail to identify relevant third-party patents or patent applications, or we may incorrectly conclude that a third-party patent is invalid or not infringed by our product candidates or activities. If a patent holder believes our drug or product candidate infringes its patent, the patent holder may sue us even if we have received patent protection for our technology. Moreover, we may face patent infringement claims from non-practicing entities that have no relevant drug revenue and against whom our own patent portfolio may thus have no deterrent effect. If a patent infringement suit were threatened or brought against us, we could be forced to stop or delay research, development, manufacturing or sales of the drug or product candidate that is the subject of the actual or threatened suit.

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 commercializing our product candidates. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if a license can be obtained on acceptable terms, the rights may be non-exclusive, which could give our competitors access to the same technology or intellectual property rights licensed to us. If we fail to obtain a required license, we may be unable to effectively market product candidates based on our technology, which could limit our ability to generate revenue or achieve profitability and possibly prevent us from generating revenue sufficient to sustain our operations. Alternatively, we may need to redesign our infringing products, which may be impossible or require substantial time and monetary expenditure. Under certain circumstances, we could be forced, including by court orders, to cease commercializing our product candidates. In addition, in any such proceeding or litigation, we could be found liable for substantial monetary damages, potentially including treble damages and attorneys' fees, if we are found to have willfully infringed. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some of our business operations, which could harm our business. Any claims by third parties that we have misappropriated their confidential information or trade secrets could have a similar negative impact on our business.

The cost to us in defending or initiating any litigation or other proceeding relating to patent or other proprietary rights, even if resolved in our favor, could be substantial, and litigation would divert our management's attention. Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could delay our research and development efforts and limit our ability to continue our operations.

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

We employ individuals who were previously employed at other biotechnology or pharmaceutical companies. Although we try to ensure that our employees, consultants and advisors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or our employees, consultants, or independent contractors have inadvertently or otherwise used or disclosed confidential information of our employees' former employers or other third parties. We may also be subject to claims that former employers or other third parties have an ownership interest in our future patents. Litigation may be necessary to defend against these claims. There is no guarantee of success in defending these claims, and even if we are successful, litigation could result in substantial cost and be a distraction to our management and other employees.

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

We may also be subject to claims that former employees, collaborators, or other third parties have an ownership interest in our patent and applications, our future patents, or other intellectual property. We may be subject to ownership disputes in the future arising, for example, from conflicting obligations of consultants or others who are involved in developing our product candidates. Although it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own, and we cannot be certain that our agreements with such parties will be upheld in the face of a potential challenge, or that they will not be breached, for which we may not have an adequate remedy. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and litigation may be necessary to defend against these and other claims challenging inventorship or ownership. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

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

If we rely on third parties to manufacture or commercialize VP-102 or any future product candidates, or if we collaborate with additional third parties for the development of VP-102 or any future product candidates, we must, at times, share trade secrets with them. We may also conduct joint research and development programs that may require us to share trade secrets under the terms of our research and development partnerships or similar agreements. We seek to protect our proprietary technology in part by entering into confidentiality agreements and, if applicable, material transfer agreements, consulting agreements or other similar agreements with our advisors, employees, third-party contractors and consultants prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information, including our trade secrets. Despite the contractual provisions employed when working with third parties, the need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our know-how and trade secrets, a competitor's discovery of our trade secrets or other unauthorized use or disclosure could have an adverse effect on our business and results of operations.

In addition, these agreements typically restrict the ability of our advisors, employees, third-party contractors and consultants to publish data potentially relating to our trade secrets. Despite our efforts to protect our trade secrets, we may not be able to prevent the unauthorized disclosure or use of our technical know-how or other trade secrets by the parties to these agreements. Moreover, we cannot guarantee that we have entered into such agreements with each party that may have or have had access to our confidential information or proprietary technology and processes. Monitoring unauthorized uses and disclosures is difficult, and we do not know whether the steps we have taken to protect our proprietary technologies will be effective. If any of the collaborators, scientific advisors, employees, contractors and consultants who are parties to these agreements breaches or violates the terms of any of these agreements, we may not have adequate remedies for any such breach or violation, and we could lose our trade secrets as a result. Moreover, if confidential information that is licensed or disclosed to us by our partners, collaborators, or others is inadvertently disclosed or subject to a breach or violation, we may be exposed to liability to the owner of that confidential information. Enforcing a claim that a third-party illegally obtained and is using our trade secrets, like patent litigation, is expensive and time consuming, and the outcome is unpredictable. In addition, courts outside the United States are sometimes less willing to protect trade secrets.

Intellectual property rights do not necessarily address all potential threats to our competitive advantage.

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

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

Should any of these events occur, they could significantly harm our business, results of operations and prospects.

Risks Related to Legal and Regulatory Compliance Matters

Our relationships with customers, physicians, and third-party payors may be subject, directly or indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, health information privacy and security laws, and other healthcare laws and regulations. If we are unable to comply, or have not fully complied, with such laws, we could face substantial penalties.

Healthcare providers, physicians and third-party payors in the United States and elsewhere will play a primary role in the recommendation and prescription of any product candidates for which we obtain marketing approval. Our current and future arrangements with healthcare professionals, principal investigators, consultants, customers and third-party payors may subject us to various federal and state fraud and abuse laws and other healthcare laws, including, without limitation, the federal Anti-Kickback Statute, the federal civil and criminal false claims laws and the law commonly referred to as the Physician Payments Sunshine Act and regulations. These laws will impact, among other things, our clinical research, proposed sales, marketing and educational programs, and other interactions with healthcare professionals. In addition, we may be subject to patient privacy laws by both the federal government and the states in which we conduct or may conduct our business. The laws that will affect our operations include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits, among other things, individuals or entities from knowingly and willfully soliciting, receiving, offering or paying any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, in return for the purchase, recommendation, leasing or furnishing of an item or service reimbursable under a federal healthcare program, such as the Medicare and Medicaid programs. The term “remuneration” has been broadly interpreted to include anything of value. Although there are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution, the exceptions and safe harbors are drawn narrowly and require strict compliance in order to offer protection. Practices that involve remuneration that may be alleged to

be intended to induce prescribing, purchases or recommendations may be subject to scrutiny if they do not qualify for an exception or safe harbor. A person does not need to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation. In addition, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively, the ACA, provides that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act and the civil monetary penalties statute;

- the federal civil and criminal false claims laws, including, without limitation, the False Claims Act, and civil monetary penalty laws which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment or approval from Medicare, Medicaid or other government payors that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government. A claim includes “any request or demand” for money or property presented to the U.S. government. Several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies’ marketing of products for unapproved or off-label, and thus non-reimbursable, uses;
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, created additional federal criminal statutes which prohibit, among other things, a person from knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and their implementing regulations, which imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information without appropriate authorization on health plans, healthcare clearinghouses and certain healthcare providers, known as covered entities, and their respective business associates, independent contractors that perform certain services involving the use or disclosure of individually identifiable health information. HITECH also created new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce HIPAA and seek attorneys’ fees and costs associated with pursuing federal civil actions;
- the federal transparency laws, including the federal Physician Payments Sunshine Act, which requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children’s Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services, or CMS, information related to: (i) payments or other “transfers of value” made to physicians, as defined by such law, and teaching hospitals; and (ii) ownership and investment interests held by physicians and their immediate family members; and
- state and foreign law equivalents of each of the above federal laws; state laws that require manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; state laws that require pharmaceutical companies to comply with the pharmaceutical industry’s voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, or that otherwise restrict payments that may be made to healthcare providers; state laws that require the reporting of information related to drug prices; state and local laws that require the registration of pharmaceutical sales representatives; and state and foreign laws that govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Because of the breadth of these laws and the narrowness of the statutory exceptions and regulatory safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from participating in government funded healthcare programs, such as Medicare and Medicaid, 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, contractual damages, reputational harm and the curtailment or restructuring of our operations.

The risk of our being found in violation of these laws is increased by the fact that many of them have not been fully interpreted by the regulatory authorities or the courts, and their provisions are open to a variety of interpretations. Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. The shifting compliance environment and the need to build and maintain robust and expandable systems to comply with multiple jurisdictions with different compliance and/or reporting requirements increases the possibility that a healthcare company may run afoul of one or more of the requirements.

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

If VP-102 or other product candidates that we may identify are approved and we are found to have improperly promoted off-label uses of those products, we may become subject to significant liability. The FDA and other regulatory agencies strictly regulate the promotional claims that may be made about prescription products, such as our product candidates, if approved. In particular, generally, a product may not be promoted for uses that are not approved by the FDA or such other regulatory agencies as reflected in the product's approved labeling. However, physicians may, in their independent medical judgment, prescribe legally available products for off-label uses. The FDA does not regulate the behavior of physicians in their choice of treatments but the FDA does restrict manufacturer's communications on the subject of off-label use of their products. If we are found to have promoted such off-label uses, we may become subject to significant liability. The federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined several companies from engaging in off-label promotion. The FDA has also required that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. If we cannot successfully manage the promotion of our product candidates, if approved, we could become subject to significant liability, which would materially adversely affect our business and financial condition.

Even if we obtain regulatory approval for VP-102 or any future product candidates, they will remain subject to ongoing regulatory oversight.

Even if we obtain any regulatory approval for VP-102 or any future product candidates, such product candidates, once approved, will be subject to ongoing regulatory requirements for manufacturing, labeling, packaging, storage, advertising, promoting, sampling, record-keeping and submitting of safety and other post-market information among other things. Any regulatory approvals that we receive for VP-102 or any future product candidates may also be subject to a REMS, limitations on the approved indicated uses for which the drug may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase 4 trials, and surveillance to monitor the quality, safety and efficacy of the drug. An unsuccessful post-marketing study or failure to complete such a study could result in the withdrawal of marketing approval. We will further be required to immediately report any serious and unexpected adverse events and certain quality or production problems with our products to regulatory authorities along with other periodic reports.

Any new legislation addressing drug safety issues could result in delays in product development or commercialization, or increased costs to assure compliance. We will also have to comply with requirements concerning advertising and promotion for our products. Promotional communications with respect to prescription drug products are subject to a variety of legal and regulatory restrictions and must be consistent with the information in the product's approved label. As such, we will not be allowed to promote our products for indications or uses for which they do not have approval. The holder of an approved NDA must submit new or supplemental applications and obtain prior approval for certain changes to the approved product, product labeling, or manufacturing process.

In addition, drug manufacturers and their facilities are subject to payment of user fees and continual review and periodic inspections by the FDA and other regulatory authorities for compliance with cGMP requirements and adherence to commitments made in the NDA or foreign marketing application. If we, or a regulatory authority, discover previously unknown problems with a drug, such as adverse events of unanticipated severity or frequency, or problems with the facility where the drug is manufactured or if a regulatory authority disagrees with the promotion, marketing or labeling of that drug, a regulatory authority may impose restrictions relative to that drug, the manufacturing facility or us, including requesting a recall or requiring withdrawal of the drug from the market or suspension of manufacturing.

If we fail to comply with applicable regulatory requirements following approval of VP-102 or any future product candidates, a regulatory authority may:

- issue an untitled letter or warning letter asserting that we are in violation of the law;
- seek an injunction or impose administrative, civil or criminal penalties or monetary fines;
- suspend or withdraw regulatory approval;
- suspend any ongoing clinical trials;
- refuse to approve a pending NDA or comparable foreign marketing application (or any supplements thereto) submitted by us or our strategic partners;
- restrict the marketing or manufacturing of the drug;
- seize or detain the drug or otherwise require the withdrawal of the drug from the market;
- refuse to permit the import or export of product candidates; or
- refuse to allow us to enter into supply contracts, including government contracts.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response and could generate negative publicity. The occurrence of any event or penalty described above may inhibit our ability to commercialize VP-102 or any future product candidates and harm our business, financial condition, results of operations and prospects.

Healthcare legislative or regulatory reform measures may have a negative impact on our business and results of operations.

In the United States and some foreign jurisdictions, there have been, and continue to be, several legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of product candidates, restrict or regulate post-approval activities, and affect our ability to profitably sell any 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. In March 2010, the ACA was passed, which substantially changed the way healthcare is financed by both the government and private insurers, and significantly impacts the U.S. pharmaceutical industry. The ACA, among other things: (i) increased the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program and extends the rebate program to individuals enrolled in Medicaid managed care organizations; (ii) established an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents apportioned

among these entities according to their market share in some government healthcare programs; (iii) expanded the availability of lower pricing under the 340B drug pricing program by adding new entities to the program; (iv) increased the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program, to 23.1% and 13% of the average manufacturer price for most branded and generic drugs, respectively and capped the total rebate amount for innovator drugs at 100% of the Average Manufacturer Price, or AMP; (v) expanded the 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 individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability; (vi) created a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research; and (vii) established a Center for Medicare and Medicaid Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug.

There remain judicial and Congressional challenges to certain aspects of the ACA, as well as efforts by the Trump administration to repeal or replace certain aspects of the ACA. While Congress has not passed comprehensive repeal legislation, bills affecting the implementation of certain taxes under the ACA have been signed into law. The Tax Cuts and Jobs Act of 2017, or Tax Act includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate". In addition, the 2020 federal spending package permanently eliminates, effective January 1, 2020, the ACA-mandated "Cadillac" tax on high-cost employer-sponsored health coverage and medical device tax and, effective January 1, 2021, also eliminates the health insurer tax. The Bipartisan Budget Act of 2018, or the BBA, among other things, amended the ACA, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole." In December 2018, CMS published a final rule permitting further collections and payments to and from certain ACA qualified health plans and health insurance issuers under the ACA risk adjustment program in response to the outcome of federal district court litigation regarding the method CMS uses to determine this risk adjustment. On December 14, 2018, a Texas U.S. District Court Judge ruled that the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of the Tax Act. Additionally, on December 18, 2019, the U.S. Court of Appeals for the 5th Circuit upheld the District Court ruling that the individual mandate was unconstitutional and remanded the case back to the District Court to determine whether the remaining provisions of the ACA are invalid as well. It is unclear how this decision, future decisions, subsequent appeals, and other efforts to repeal and replace the ACA will impact the ACA and our business.

Other legislative changes have been proposed and adopted since the ACA was enacted. These changes include aggregate reductions to Medicare payments to providers of 2% per fiscal year pursuant to the Budget Control Act of 2011, which began in 2013, and due to subsequent legislative amendments to the statute, including the BBA, will remain in effect through 2029 unless additional Congressional action is taken. The American Taxpayer Relief Act of 2012, among other things, further reduced Medicare payments to several providers, including hospitals and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding, which could have an adverse effect on customers for our product candidates, if approved, and, accordingly, our financial operations.

Additionally, there has been heightened governmental scrutiny in the United States of pharmaceutical pricing practices in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for products. At the federal level, the Trump administration's budget proposal for fiscal year 2020 contains further drug price control measures that could be enacted during the budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Additionally, the Trump administration released a "Blueprint" to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. The Department of Health and Human Services, or HHS, has solicited feedback on some of these measures and implemented others under its existing authority. For example, in May 2019, CMS issued a final rule to allow Medicare Advantage plans the option to use step therapy for Part B drugs beginning January 1, 2020. This final rule codified CMS's policy change that was effective January 1, 2019. While a

number of these and other measures may require additional authorization to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures are increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

We expect that these and other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for any approved drug. 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 drugs.

In addition, FDA regulations and guidance may be revised or reinterpreted by the FDA in ways that may significantly affect our business and our products. The Trump administration has also taken several executive actions, including the issuance of a number of Executive Orders, that could impose significant burdens on, or otherwise materially delay, the FDA's ability to engage in routine oversight activities such as implementing statutes through rulemaking, issuance of guidance, and review and approval of marketing applications. It is difficult to predict how these requirements will be interpreted and implemented and the extent to which they will impact the FDA's ability to exercise its regulatory authority. If these executive actions impose restrictions on the FDA's ability to engage in oversight and implementation activities in the normal course, our business may be negatively impacted. Any new regulations or guidance, including implementation of or new guidance regarding the frameworks for compounding under Sections 503A and 503B of the FDCA, or revisions or reinterpretations of existing regulations or guidance, may impose additional costs or lengthen FDA review times for VP-102 or any future product candidates. We cannot determine how changes in regulations, statutes, policies, or interpretations when and if issued, enacted or adopted, may affect our business in the future. Such changes could, among other things, require:

- additional clinical trials to be conducted prior to obtaining approval;
- changes to manufacturing methods;
- recalls, replacements, or discontinuance of one or more of our products; and
- additional recordkeeping.

Such changes would likely require substantial time and impose significant costs, or could reduce the potential commercial value of VP-102 or other product candidates by authorizing competition in the form of compounded cantharidin products, and could materially harm our business and our financial results. In addition, delays in receipt of or failure to receive regulatory clearances or approvals for any other products would harm our business, financial condition, and results of operations.

Our business activities may be subject to the Foreign Corrupt Practices Act, or FCPA, and similar anti-bribery and anti-corruption laws.

Our business activities may be subject to the FCPA and similar anti-bribery or anti-corruption laws, regulations or rules of other countries in which we operate. The FCPA generally prohibits offering, promising, giving, or authorizing others to give anything of value, either directly or indirectly, to a non-U.S. government official in order to influence official action, or otherwise obtain or retain business. The FCPA also requires public companies to make and keep books and records that accurately and fairly reflect the transactions of the corporation and to devise and maintain an adequate system of internal accounting controls. Our business is heavily regulated and therefore involves significant interaction with public officials, including officials of non-U.S. governments. Additionally, in many other countries, the health care providers who prescribe pharmaceuticals are employed by their government, and the purchasers of pharmaceuticals are government entities; therefore, our dealings with these prescribers and purchasers are subject to regulation under the FCPA. Recently the SEC and Department of Justice have increased their FCPA enforcement activities with respect to biotechnology and pharmaceutical companies. There is no certainty that all of our employees, agents, suppliers, manufacturers, contractors, or collaborators, or those of our affiliates, will comply with all applicable laws and regulations, particularly given the high level of complexity of these laws. Violations of these laws and regulations could result in fines, criminal sanctions against us, our officers, or our employees, the closing down of facilities, including those of our suppliers and manufacturers, requirements to obtain export licenses, cessation of business activities in sanctioned countries, implementation of compliance programs, and prohibitions on the conduct of our business. Any such violations could include prohibitions on our ability to offer our products in one or more countries as well as difficulties in manufacturing or continuing to develop our products, and could materially damage our reputation, our brand, our international expansion efforts, our ability to attract and retain employees, and our business, prospects, operating results, and financial condition.

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, development, clinical, financial and business development expertise of Ted White, our President and Chief Executive Officer, Joe Bonaccorso, our Chief Commercial Officer, Patrick Burnett, our Chief Medical Officer, A. Brian Davis, our Chief Financial Officer, and the other members of our scientific and clinical teams. While we have entered into employment agreements with our executive officers, each of them may currently terminate their employment with us at any time. We do not maintain “key person” insurance for any of our executives or employees.

Recruiting and retaining qualified scientific and clinical personnel and, if we progress the development of our product 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 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 products. 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 development and commercialization strategy. Our consultants and advisors may be employed by employers other than us and 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.

We expect to expand our development and regulatory capabilities and potentially implement sales, marketing and distribution capabilities, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.

As of December 31, 2019, we had 17 full-time employees. As our development progresses, we expect to experience significant growth in the number of our employees and the scope of our operations, particularly in the areas of product development, regulatory affairs and, if any of our product candidates receives marketing approval, sales, marketing and distribution. To manage our anticipated future growth, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities and continue to recruit and train additional qualified personnel. Due to our limited financial resources and the limited experience of our management team in managing a company with such anticipated growth, we may not be able to effectively manage the expansion of our operations or recruit and train additional qualified personnel. The expansion of our operations may lead to significant costs and may divert our management and business development resources. Any inability to manage growth could delay the execution of our business plans or disrupt our operations.

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

We are exposed to the risk that our employees, independent contractors, consultants, commercial collaborators, principal investigators, CROs, suppliers and vendors may engage in fraudulent conduct or other illegal activity. Misconduct by these parties could include intentional, reckless and/or negligent conduct or disclosure of unauthorized activities to us that violates FDA regulations, including those laws requiring the reporting of true, complete and accurate information to the FDA, manufacturing standards, federal and state healthcare laws and regulations, and laws that require the true, complete and accurate reporting of financial information or data. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Misconduct by these parties 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. We have adopted a code of business conduct and ethics, but it is not always possible to identify and deter misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant civil, criminal and administrative penalties, including, without limitation, damages, fines, disgorgement, imprisonment, exclusion from participation in government healthcare programs, such as Medicare and Medicaid, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations.

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

An active trading market for our common stock may not continue to develop or be sustained.

Prior to our initial public offering, there was no public market for our common stock, and we cannot assure you that an active trading market for our shares will continue to develop or be sustained. As a result, it may be difficult for you to sell shares at an attractive price or at all.

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

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

- the commencement, enrollment or results of our clinical trials of VP-102 for the treatment of common warts and external genital warts and any future clinical trials we may conduct, or changes in the development status of our product candidates;
- any delay in our regulatory filings for VP-102 for the treatment of molluscum and common warts or any other product candidate we may develop, including VP-103, and any adverse development or perceived adverse development with respect to the applicable regulatory authority's review of such filings, including without limitation the FDA's issuance of a "refusal to file" letter or a request for additional information;
- adverse results from, delays in or termination of clinical trials;
- adverse regulatory decisions, including failure to receive regulatory approval of our product candidates;
- unanticipated serious safety concerns related to the use of VP-102 or any other product candidate;
- changes in financial estimates by us or by any securities analysts who might cover our stock;
- conditions or trends in our industry;
- changes in the market valuations of similar companies;
- stock market price and volume fluctuations of comparable companies and, in particular, those that operate in the biopharmaceutical industry;
- publication of research reports about us or our industry or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- 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;
- investors' general perception of our company and our business;
- recruitment or departure of key personnel;
- overall performance of the equity markets;
- trading volume of our common stock;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;
- significant lawsuits, including patent or stockholder litigation;
- changes in the structure of healthcare payment systems;
- general political and economic conditions; and
- other events or factors, many of which are beyond our control.

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. Such litigation, if instituted against us, could cause us to incur substantial costs and divert management's attention and resources from our business.

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 will be influenced by the research and reports that equity research analysts publish about us and our business. As a newly public company, we have only limited research coverage by equity research analysts. Equity research analysts may elect not to initiate or continue to provide research coverage of our common stock, and such lack of research coverage may adversely affect the market price of our common stock. Even if we continue to have equity research analyst coverage, we will not have any control over the analysts or the content and opinions included in their reports. The price of our stock could decline if one or more equity research analysts downgrade our stock or issue other unfavorable commentary or research. If one or more equity research analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which in turn could cause our stock price or trading volume to decline.

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, subject to the restrictions and limitations described below. 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. All of our outstanding shares of common stock are available for sale in the public market, subject only to the restrictions of Rule 144 under the Securities Act in the case of our affiliates.

In addition, we have filed registration statements on Form S-8 under the Securities Act registering the issuance of 6,009,951 shares of common stock subject to options or other equity awards issued or reserved for future issuance under our equity incentive plans. Shares registered under this registration statement on Form S-8 are available for sale in the public market subject to vesting arrangements and exercise of options, the lock-up agreements described above and the restrictions of Rule 144 in the case of our affiliates.

Provisions in our corporate charter documents and under Delaware law may prevent or frustrate attempts by our stockholders to change our management and hinder efforts to acquire a controlling interest in us, and the market price of our common stock may be lower as a result.

There are provisions in our certificate of incorporation and bylaws that may make it difficult for a third party to acquire, or attempt to acquire, control of our company, even if a change of control was considered favorable by you and other stockholders. For example, our board of directors has the authority to issue up to 10,000,000 shares of preferred stock. The board of directors can fix the price, rights, preferences, privileges, and restrictions of the preferred stock without any further vote or action by our stockholders. The issuance of shares of preferred stock may delay or prevent a change of control transaction. As a result, the market price of our common stock and the voting and other rights of our stockholders may be adversely affected. An issuance of shares of preferred stock may result in the loss of voting control to other stockholders.

Our charter documents contain other provisions that could have an anti-takeover effect, including:

- only one of our three classes of directors are elected each year;
- stockholders are not entitled to remove directors other than by a 66 2/3% vote and only for cause;
- stockholders are not permitted to take actions by written consent;
- stockholders cannot call a special meeting of stockholders; and
- stockholders must give advance notice to nominate directors or submit proposals for consideration at stockholder meetings.

In addition, we are subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law, which regulates corporate acquisitions by prohibiting Delaware corporations from engaging in specified business combinations with particular stockholders of those companies. These provisions could discourage potential acquisition proposals and could delay or prevent a change of control transaction. They could also have the effect of discouraging others from making tender offers for our common stock, including transactions that may be in your best interests. These provisions may also prevent changes in our management or limit the price that investors are willing to pay for our stock.

Concentration of ownership of our common stock among our existing executive officers, directors and principal stockholders may prevent our other stockholders from influencing significant corporate decisions.

Our executive officers, directors and current beneficial owners of 5% or more of our common stock and their respective affiliates, including entities affiliated with Paul B. Manning, in the aggregate, beneficially own a majority of our outstanding common stock. As a result, these persons, acting together, can significantly influence all matters requiring stockholder approval, including the election and removal of directors, any merger, consolidation, sale of all or substantially all of our assets, or other significant corporate transactions.

Some of these persons or entities may have interests different than yours. For example, because many of these stockholders purchased their shares at prices substantially below the current market price of our common stock and have held their shares for a longer period, they may be more interested in selling our company to an acquirer than other investors, or they may want us to pursue strategies that deviate from the interests of other stockholders.

We are an “emerging growth company” and, as a result of the reduced disclosure and governance requirements applicable to emerging growth companies, our common stock may be less attractive to investors.

We are an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, and we intend to take advantage of some of the exemptions from reporting requirements that are applicable to other public companies that are not emerging growth companies, including:

- being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced “Management’s Discussion and Analysis of Financial Condition and Results of Operations” disclosure;
- not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor’s report providing additional information about the audit and the financial statements;
- reduced disclosure obligations regarding executive compensation in our periodic reports, proxy statements and registration statements; and
- not being required to hold a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved.

We cannot predict if investors will find our common stock less attractive because we will rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile. We may take advantage of these reporting exemptions until we are no longer an emerging growth company. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) ending December 31, 2023, which is the end of the fiscal year following the fifth anniversary of the closing of our initial public offering, (b) in which we have total annual gross revenue of at least \$1.07 billion, or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the prior June 30th, and (2) the date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period.

Under Section 107(b) of the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

If we fail to further implement and maintain proper and effective internal controls to remediate our material weakness, our ability to produce accurate financial statements on a timely basis could be impaired.

We are subject to the reporting requirements of the Securities Exchange Act of 1934, 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.

Commencing with our fiscal year ended December 31, 2019, we began to perform 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 Form 10-K filing for that year, as required by Section 404 of the Sarbanes-Oxley Act. This requires that we incur substantial additional professional fees and internal costs to expand our accounting and finance functions and that we expend significant management efforts.

In connection with our evaluation of the effectiveness of our disclosure controls and procedures for the year ended December 31, 2019, we have identified a material weakness in our information technology, or IT, general controls, or collectively ITGCs, and related IT-dependent process level controls, which are part of our internal control over financial reporting. Process-level controls that were dependent upon information derived from one of our system was also determined to be ineffective. These deficiencies were the result of an inadequate IT risk assessment process which did not identify the risks associated with ineffective segregation of duties within the IT system. We are in the process of implementing a number of measures to address the material weakness and deficiencies that have been identified. See “Item 9A—Management’s Report on Internal Control Over Financial Reporting and –Remediation of Material Weakness.” However, we cannot assure you that these measures may fully address the material weakness and deficiencies in our internal control over financial reporting or that we may conclude that they have been fully remediated

We may identify additional 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 in a timely manner, or if we are unable to maintain proper and effective internal controls, 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 Securities and Exchange Commission, or SEC, or other regulatory authorities.

Our effective tax rate may fluctuate, and we may incur obligations in tax jurisdictions in excess of accrued amounts.

We are subject to taxation in more than one tax jurisdiction. As a result, our effective tax rate is derived from a combination of applicable tax rates in the various places that we operate. In preparing our financial statements, we estimate the amount of tax that will become payable in each of such places. Nevertheless, our effective tax rate may be different than experienced in the past due to numerous factors, including passage of the 2017 federal income tax law, changes in the mix of our profitability from jurisdiction to jurisdiction, the results of examinations and audits of our tax filings, our inability to secure or sustain acceptable agreements with tax authorities, changes in accounting for income taxes and changes in tax laws. Any of these factors could cause us to experience an effective tax rate significantly different from previous periods or our current expectations and may result in tax obligations in excess of amounts accrued in our financial statements.

We might not be able to utilize a significant portion of our net operating loss carryforwards.

As of December 31, 2019, we had federal and state net operating loss carryforwards of approximately \$49.9 million and \$50.2 million, respectively. The federal net operating loss carryforwards included in the foregoing totals that were generated prior to 2018 (federal of approximately \$6.9 million) will begin to expire, if not utilized, by 2033. These net operating loss carryforwards could expire unused and be unavailable to offset future income tax liabilities. Under the 2017 federal income tax law changes, 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 how various states will respond to the 2017 federal tax law changes. In addition, under Section 382 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, 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 or taxes may be limited. We may experience ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control. If an ownership change occurs and our ability to use our net operating loss carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations.

We do not anticipate paying any cash dividends on our common stock in the foreseeable future.

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 the Loan Agreements restrict us from paying dividends, subject to limited exceptions, and any future debt agreements may also 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 have begun to incur increased costs and demands upon management as a result of being a public company.

As a newly public company listed in the United States, we have begun to 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 and the Nasdaq Stock Market, 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 and our business may be harmed.

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.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware and, to the extent enforceable, the federal district courts of the United States of America will be the exclusive forums 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 employees.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim for breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws or (iv) any action asserting a claim governed by the internal affairs doctrine. Our amended and restated certificate of incorporation further provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act, subject to and contingent upon a final adjudication in the State of Delaware of the enforceability of such exclusive forum provision. These exclusive forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. For example, stockholders who do bring a claim in the Court of Chancery could face additional litigation costs in pursuing any such claim, particularly if they do not reside in or near the State of Delaware. The Court of Chancery and federal district courts may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments or results may be more favorable to us than to our stockholders. Some companies that adopted a similar federal district court forum selection provision are currently subject to a suit in the Chancery Court of Delaware by stockholders who assert that the provision is not enforceable. If a court were to find either choice of forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition. For example, the Court of Chancery of the State of Delaware recently determined that the exclusive forum provision of federal district courts of the United States of America for resolving any complaint asserting a cause of action arising under the Securities Act is not enforceable. However, this decision has been appealed and may be reviewed and ultimately overturned by the Delaware Supreme Court. If this ultimate adjudication were to occur, we would enforce the federal district court exclusive forum provision in our amended and restated certificate of incorporation.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We operate in a 4,962 square foot facility in West Chester, Pennsylvania pursuant to a sublease agreement that expires in May 2021.

On July 1, 2019, we entered into a lease for 5,829 square feet of office space located in West Chester, Pennsylvania that is expected to serve as our new headquarters beginning in mid-2020. The initial term of the lease is seven years with one five-year renewal option and an ongoing right of first offer to lease up to approximately 5,000 square feet of additional space on the same floor of the building.

We believe that our existing facilities are suitable and adequate to meet our current needs. We intend to add new facilities or expand existing facilities as we add employees, and we believe that suitable additional or substitute space will be available as needed to accommodate any such expansion of our operations.

ITEM 3. LEGAL PROCEEDINGS

We are not currently a party to any material legal proceedings and we are not aware of any pending or threatened legal proceeding against us that we believe could have a material adverse effect on our business, operating results or financial condition.

ITEM 4. MINE SAFETY DISCLOSURES

None.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASE OF EQUITY SECURITIES

Dividend Policy

We have never declared or paid, and do not anticipate declaring or paying, in the foreseeable future, any cash dividends on our capital stock. We currently intend to retain all available funds and any future earnings to support our operations and finance the growth and development of our business. Pursuant to the Loan Agreements, we are also restricted from paying dividends or making other distributions or payments on our capital stock, subject to limited exceptions. Any future determination related to our dividend policy will be made at the discretion of our board of directors and will depend upon, among other factors, our results of operations, financial condition, capital requirements, contractual restrictions, business prospects and other factors our board of directors may deem relevant.

Stockholders

Our common stock is listed on the Nasdaq Global Select Market under the symbol "VRCA". As of March 6, 2020, we had 25,814,493 shares of common stock outstanding held by 37 holders of record. 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.

Use of Proceeds from Initial Public Offering of Common Stock

On June 14, 2018, our Registration Statement on Form S-1, as amended (File No. 333-225104) was declared effective in connection with our initial public offering, or IPO, pursuant to which we sold 5,750,000 shares of our common stock, including the full exercise of the underwriters' option to purchase additional shares, at a price to the public of \$15.00 per share. The IPO closed on June 19, 2018. We received net proceeds from the IPO of \$78.4 million (after deducting underwriters' discounts and commissions and additional offering related costs of \$7.9 million). The joint book-running underwriters of the offering were Merrill Lynch, Pierce, Fenner & Smith Incorporated, Jefferies LLC and Cowen and Company, LLC.

No expenses incurred by us in connection with our IPO were paid directly or indirectly to (i) any of our officers or directors or their associates, (ii) any persons owning 10% or more of any class of our equity securities, or (iii) any of our affiliates, other than payments in the ordinary course of business to officers for salaries and to non-employee directors as compensation for board or board committee service.

There has been no material change in the planned use of proceeds from our IPO from those disclosed in the final prospectus for our IPO dated as of June 14, 2018 and filed with the SEC on June 15, 2018 pursuant to Rule 424(b)(4).

Recent Sales of Unregistered Securities

None.

Purchases of Equity Securities by the Issuer and Affiliated Parties

None.

ITEM 6. SELECTED FINANCIAL DATA

Not applicable.

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 in conjunction with the financial statements and the related notes to those statements included later in this Annual Report. In addition to historical financial information, the following discussion contains forward-looking statements that reflect our plans, estimates, beliefs and expectations that involve risks and uncertainties. Our actual results and the timing of events could differ materially from those discussed in these forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Annual Report, particularly in Item 1A. "Risk Factors" and "Special Note Regarding Forward-Looking Statements."

Overview

We are a dermatology therapeutics company committed to the development and commercialization of novel treatments that provide meaningful benefit for people living with skin diseases. Our lead product candidate, VP-102, is a proprietary drug-device combination of our novel topical solution of cantharidin, a widely recognized, naturally sourced agent to treat topical dermatological conditions, administered through our single-use precision applicator. We are initially developing VP-102 for the treatment of molluscum contagiosum, or molluscum, a highly contagious and primarily pediatric viral skin disease, and common warts. There are currently no products approved by the U.S. Food and Drug Administration, or FDA, nor is there an established standard of care for either of these diseases, resulting in significant undertreated populations in two of the largest unmet needs in dermatology. In addition to patent protection we are seeking, VP-102 has the potential to be the first FDA-approved product for molluscum and for its active pharmaceutical ingredient, or API, to be characterized as a new chemical entity, or NCE, with the five years of non-patent regulatory exclusivity associated with that designation. We also believe VP-102 has the potential to qualify for pediatric exclusivity, which would provide for an additional six months of non-patent exclusivity.

In January 2019, we reported positive top-line results from our Phase 3 CAMP-1 and CAMP-2 pivotal trials with VP-102 for the treatment of molluscum. Both clinical trials evaluated the safety and efficacy of VP-102 compared to placebo. In each trial, we observed that a clinically and statistically significant proportion of subjects treated with VP-102 achieved complete clearance of all treatable molluscum lesions compared to subjects treated with placebo. VP-102 was well-tolerated in both trials, with no serious adverse events reported in VP-102 treated subjects. Based on the results from these trials, we submitted a new drug application, or NDA, to the FDA for VP-102 for the treatment of molluscum in September 2019. In November 2019, we received notice that the FDA accepted the NDA for filing, with a Prescription Drug User Fee Act, or PDUFA, goal date of July 13, 2020. CAMP-1 was conducted under a special protocol assessment, or SPA, agreement with the FDA. In June 2019, we announced positive topline results from our COVE-1 Phase 2 open label clinical trial of VP-102 for the treatment of verruca vulgaris, or common warts. Based on the results of the COVE-1 trial, and following an End-of-Phase 2 meeting with the FDA we plan to initiate two Phase 3 clinical trials in the first half of 2020.

In addition, we are also developing VP-102 for the treatment of external genital warts. We initiated a Phase 2 clinical trial evaluating the optimal dose regimen, efficacy, safety and tolerability of VP-102 in patients with external genital warts in June 2019. We expect to report topline data results from this trial in the second half of 2020. In addition, we are conducting necessary preclinical activities for VP-103, our second cantharidin-based product candidate, and plan to initiate a Phase 2 clinical trial in subjects with plantar warts in mid-2020. We retain exclusive, royalty-free rights to our product candidates across all indications.

Our strategy is to advance VP-102 through regulatory approval and self-commercialize in the United States for the treatment of several skin diseases. We intend to build a specialized sales organization in the United States focused on pediatric dermatologists, dermatologists, and select pediatricians. In the future, we also intend to develop VP-102 for commercialization in additional geographic regions, either alone or together with a strategic partner.

We have a limited operating history. Since our inception in 2013, our operations have focused on developing VP-102, organizing and staffing our company, business planning, raising capital, establishing our intellectual property portfolio and conducting clinical trials. We do not have any product candidates approved for sale and have not generated any revenue from product sales. We have funded our operations primarily through the sale of equity

and equity-linked securities. On June 19, 2018, we completed an IPO of common stock, which resulted in the issuance and sale of 5,750,000 shares of common stock at a public offering price of \$15.00 per share, generating net proceeds of \$78.4 million after deducting underwriting discounts and other offering costs.

Since inception, we have incurred significant operating losses. For the years ended December 31, 2019 and 2018, our net loss was \$28.2 million and \$20.6 million, respectively. As of December 31, 2019, we had an accumulated deficit of \$61.2 million. We expect to continue to incur significant expenses and operating losses for the foreseeable future. We anticipate that our expenses will increase significantly in connection with our ongoing activities, as we:

- continue our ongoing clinical programs evaluating VP-102 for the treatment of common warts as well as initiate and complete additional clinical trials, as needed;
- initiate clinical trials evaluating VP-102 for the treatment of external genital warts;
- initiate clinical trials evaluating VP-103 for the treatment of plantar warts;
- pursue regulatory approvals for VP-102 for the treatment of molluscum, and eventually for the treatment of common warts, external genital warts or any other indications we may pursue for VP-102, as well as for VP-103;
- seek to discover and develop additional product candidates;
- ultimately establish a commercialization infrastructure and scale up external manufacturing and distribution capabilities to commercialize any product candidates for which we may obtain regulatory approval, including VP-102 and VP-103;
- seek to in-license or acquire additional product candidates for other dermatological conditions;
- adapt our regulatory compliance efforts to incorporate requirements applicable to marketed products;
- maintain, expand and protect our intellectual property portfolio;
- hire additional clinical, manufacturing and scientific personnel;
- add operational, financial and management information systems and personnel, including personnel to support our product development and planned future commercialization efforts; and
- incur additional legal, accounting and other expenses in operating as a public company.

On March 10, 2020, we entered into (i) a mezzanine loan and security agreement, or the Mezzanine Loan Agreement, with Silicon Valley Bank, as administrative agent and collateral agent, or the Agent, and Silicon Valley Bank and West River Innovation Lending Fund VIII, L.P., as lenders, or the Mezzanine Lenders, pursuant to which the Mezzanine Lenders have agreed to lend the Company up to \$50.0 million in a series of term loans, and (ii) a loan and security agreement, or the Senior Loan Agreement, and together with the Mezzanine Loan Agreement, the Loan Agreements, with Silicon Valley Bank, as lender, or the Senior Lender, and together with the Mezzanine Lenders, the Lenders, pursuant to which the Senior Lender has agreed to provide the Company a revolving line of credit of up to \$5.0 million. The availability for the remaining \$15 million in term loans is subject to our achievement of (i) a specified amount in trailing six-month net revenue and (ii) a specified amount raised in equity. Upon entering into the Loan Agreements, we borrowed \$35.0 million in term loans from the Mezzanine Lenders.

We believe the \$35 million in proceeds received at closing of term loan in combination with existing cash, cash equivalents, and marketable securities will be sufficient to support our planned operations, which include expenses for the commercialization of YCANTH™, if approved, and continued full clinical development of VP-102 for additional indications, including common warts and external genital warts, as well as VP-103 for plantar warts, at least through the second quarter of 2021.

Services Agreement with PBM Capital Group, LLC

In December 2015, we entered into a services agreement, or SA, with PBM Capital Group, LLC, or PBM, an affiliate of PBM Capital Investments, LLC, and controlled by Paul B. Manning, one of our directors, to engage PBM for certain business development, operations, technical, contract, accounting and back office support services. We agreed to pay PBM a fee of \$2,500 per month for these services. The SA had an initial term of 12 months and automatically renewed monthly thereafter. See Note 5 to our financial statements for additional information.

In March 2018, we entered into an amendment to the SA with PBM effective as of April 1, 2018, which extended the term of the SA until March 31, 2019 and increased the management fee we are obligated to pay to PBM to \$50,000 per month. The SA as amended, provides for termination by us with 30 days advance notice or a mutually agreed upon effective date for transition as individual services are cancelled with a corresponding reduction in the monthly management fee. On January 1, 2019 and October 1, 2019, the SA was amended to reduce the monthly management fee to \$26,333 and \$5,000, respectively, as a result of a reduction in services provided by PBM.

Critical Accounting Policies and Significant Judgments and Estimates

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 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 judgments about the carrying value of assets and liabilities that are not apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

A summary of our significant accounting policies appears in the notes to our audited financial statements for the year ended December 31, 2019 included in this Annual Report on Form 10-K. However, we believe that the following accounting policies are important to understanding and evaluating our reported financial results, and we have accordingly included them in this discussion.

Research and Development Costs

Our research and development expenses consist primarily of costs associated with our clinical trials, salaries, employee benefits, and equity-based compensation charges for those individuals involved in ongoing research and development efforts. Research and development costs are expensed as incurred. Advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made.

Stock-Based Compensation

We recognize the grant-date fair value of share-based awards issued as compensation as expense on a straight-line basis over the requisite service period, which is generally the vesting period of the award. Prior to our IPO, the fair value of restricted stock awards was based on a determination by the board of directors of the estimated fair value of the common stock at the date of grant. The fair value of stock options is estimated at the time of grant using the Black-Scholes option pricing model, which requires the use of inputs and assumptions, the most critical of which prior to our IPO was the estimated fair value of our common stock.

Recent Accounting Pronouncements

See Note 2 to our financial statements for a discussion of recent accounting pronouncements and their effect on us.

JOBS Act

In April 2012, the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, was enacted. Section 107 of the JOBS Act provides that an “emerging growth company” can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. Thus, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this extended transition period and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

Subject to certain conditions, as an emerging growth company, we may rely on certain exemptions, including exemptions from (i) providing an auditor’s attestation report on our system of internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act and (ii) complying with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor’s report providing additional information about the audit and the financial statements, known as the auditor discussion and analysis. We will remain an emerging growth company until the earlier to occur of (1) (a) December 31, 2023, which is the end of the fiscal year following the fifth anniversary of the completion of our initial public offering, (b) the last day of the fiscal year in which we have total annual gross revenues of at least \$1.07 billion or (c) the last day of the fiscal year in which we are deemed to be a “large accelerated filer” under the rules of the U.S. Securities and Exchange Commission, which means the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the prior June 30th, and (2) the date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period.

Components of Operating Results

Revenue

We have not generated any revenue since inception.

Operating Expenses

Research and Development Expenses

Research and development expenses consist of expenses incurred in connection with the discovery and development of our product candidates. We expense research and development costs as incurred. These expenses include:

- expenses incurred under agreements with contract research organizations, or CROs, as well as investigative sites and consultants that conduct our clinical trials and preclinical studies;
- manufacturing and supply scale-up expenses and the cost of acquiring and manufacturing preclinical and clinical trial supply and commercial supply, including manufacturing validation batches;
- outsourced professional scientific development services;
- employee-related expenses, which include salaries, benefits and stock-based compensation;
- expenses relating to regulatory activities; and
- laboratory materials and supplies used to support our research activities.

Research and development activities are central to our business model. Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. We expect our research and development expenses to increase over the next several years as we increase personnel costs, including stock-based compensation, initiate and conduct Phase 3 clinical trials of VP-102 in patients with common warts, conduct our ongoing Phase 2 trial with VP-102 in external genital warts, initiate a Phase 2 trial with VP-103 in plantar warts and conduct other clinical trials and prepare regulatory filings for our product candidates.

The successful development of our product candidates is highly uncertain. At this time, we cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the remainder of the development of, or when, if ever, material net cash inflows may commence from our product candidates. This uncertainty is due to the numerous risks and uncertainties associated with the duration and cost of clinical trials, which vary significantly over the life of a project as a result of many factors, including:

- the number of clinical sites included in the trials;
- the length of time required to enroll suitable patients;
- the number of patients that ultimately participate in the trials;
- the number of doses patients receive;
- the duration of patient follow-up; and
- the results of our clinical trials.

Our expenditures are subject to additional uncertainties, including the manufacturing process for our product candidates, the terms and timing of regulatory approvals, and the expense of filing, prosecuting, defending and enforcing any patent claims or other intellectual property rights. We may never succeed in achieving regulatory approval for our product candidates. We may obtain unexpected results from our clinical trials. We may elect to discontinue, delay or modify clinical trials of our product candidates. A change in the outcome of any of these variables with respect to the development of a product candidate could mean a significant change in the costs and timing associated with the development of that product candidate. For example, if the FDA or other regulatory authorities were to require us to conduct clinical trials beyond those that we currently anticipate, or if we experience significant delays in enrollment in any of our clinical trials, we could be required to expend significant additional financial resources and time on the completion of clinical development.

General and Administrative Expenses

General and administrative expenses consist principally of salaries and related costs for personnel in executive and administrative functions, including stock-based compensation, travel expenses and recruiting expenses. Other general and administrative expenses include market research costs, insurance costs, and professional fees for audit, tax and legal services.

We anticipate that our general and administrative expenses, including payroll and related expenses, will increase in the future as we continue to increase our headcount to support the expected growth in our business, expand our operations and organizational capabilities, and prepare for potential commercialization of VP-102 for the treatment of molluscum, if successfully developed and approved. We also anticipate increased expenses associated with general operations, including costs related to audit, tax and legal services, director and officer insurance premiums, and investor relations costs

Income Taxes

Since our inception in 2013, we have not recorded any U.S. federal or state income tax benefits for the net losses we have incurred in each year due to our uncertainty of realizing a benefit from those items. As of December 31, 2019, we had federal and state net operating loss carryforwards of approximately \$49.9 million and \$50.2 million, respectively. The federal net operating loss carryforwards included in the foregoing totals that were generated prior to 2018 will begin to expire, if not utilized, by 2033. Utilization of the net operating loss carryforwards may be subject to an annual limitation according to Section 382 of the Internal Revenue Code of 1986, as amended, and similar provisions.

Results of Operations for the Years Ended December 31, 2019 and 2018

The following table summarizes our results of operations for the years ended December 31, 2019 and 2018 (in thousands):

	For the Year Ended December 31,		Change
	2019	2018	
Operating expenses:			
Research and development	\$ 15,436	\$ 12,826	\$ 2,610
General and administrative	14,644	9,052	5,592
Total operating expenses	30,080	21,878	8,202
Loss from operations	(30,080)	(21,878)	(8,202)
Other income (expense):			
Interest income	1,877	1,231	646
Other expense	(4)	(1)	(3)
Total other income	1,873	1,230	643
Net loss	\$ (28,207)	\$ (20,648)	\$ (7,559)

Research and Development Expenses

Research and development expenses were \$15.4 million for the year ended December 31, 2019, compared to \$12.8 million for the year ended December 31, 2018. The increase of \$2.6 million was primarily attributable to costs associated with Phase 2 and Phase 3 clinical activities for VP-102, an increase in costs associated with increased headcount and associated salary, bonus and stock-based compensation expense.

General and Administrative Expenses

General and administrative expenses were \$14.6 million for the year ended December 31, 2019, compared to \$9.1 million for the year ended December 31, 2018. The increase of \$5.5 million was primarily a result of increased headcount and associated salary, bonus and stock-based compensation expenses, and increased insurance, professional fees and other operating expenses.

Interest Income

Interest income for the years ended December 31, 2019 and 2018 consisted of interest earned on our cash, cash equivalents and marketable securities.

Liquidity and Capital Resources

Since our inception, we have not generated any revenue and have incurred net losses and negative cash flows from our operations. We have financed our operations since inception through sales of our convertible preferred stock and the sale of our common stock in our IPO, receiving aggregate gross proceeds of \$123.2 million.

As of December 31, 2019, we had cash, cash equivalents and marketable securities of \$62.0 million. Cash in excess of immediate requirements is invested in accordance with our investment policy, primarily with a view to liquidity and capital preservation.

We currently have no ongoing material financing commitments, such as lines of credit or guarantees, that are expected to affect our liquidity over the next five years.

On March 10, 2020, we entered into (i) a mezzanine loan and security agreement, or the Mezzanine Loan Agreement, with Silicon Valley Bank, as administrative agent and collateral agent, or the Agent, and Silicon Valley Bank and West River Innovation Lending Fund VIII, L.P., as lenders, or the Mezzanine Lenders, pursuant to which the Mezzanine Lenders have agreed to lend the Company up to \$50.0 million in a series of term loans, and (ii) a loan and security agreement, or the Senior Loan Agreement, and together with the Mezzanine Loan Agreement, the Loan Agreements, with Silicon Valley Bank, as lender, or the Senior Lender, and together with the Mezzanine Lenders, the Lenders, pursuant to which the Senior Lender has agreed to provide the Company a revolving line of credit of up to \$5.0 million. The availability for the remaining \$15 million in term loans is subject to our achievement of (i) a specified amount in trailing six-month net revenue and (ii) a specified amount raised in equity. Upon entering into the Loan Agreements, the Company borrowed \$35.0 million in term loans from the Mezzanine Lenders. See Note 13 to our financial statements for additional information.

Cash Flows

The following table summarizes our cash flows for the years ended December 31, 2019 and 2018 (in thousands):

	For the Year Ended December 31,	
	2019	2018
Net cash used in operating activities	\$ (27,408)	\$ (17,874)
Net cash provided by (used in) investing activities	25,955	(79,894)
Net cash provided by financing activities	423	99,376
Net (decrease) increase in cash and cash equivalents	\$ (1,030)	\$ 1,608

Operating Activities

During the year ended December 31, 2019, operating activities used \$27.4 million of cash, primarily resulting from a net loss of \$28.2 million and non-cash stock-based compensation of \$3.3 million. Net cash used by changes in operating assets and liabilities of \$1.7 million consisted primarily of an increase in prepaid expenses and other

assets of \$1.6 million. The increase in prepaid expenses and other assets was primarily due to prepayments for clinical development and product development activities and annual insurance policy payments.

During the year ended December 31, 2018, operating activities used \$17.9 million of cash, primarily resulting from a net loss of \$20.6 million and non-cash stock-based compensation of \$2.3 million. Net cash provided by changes in operating assets and liabilities of \$0.9 million consisted primarily of increases in accounts payable and accrued expenses of \$1.8 million, partially offset by increases in prepaid expenses and other assets of \$0.9 million. The increase in accounts payable and accrued expenses was primarily due to clinical trial and product development activities, and accruals for expenses related to a consulting agreement with our former Chief Scientific Officer, and discretionary annual employee bonuses. The increase in prepaid expenses and other assets was primarily due to prepayments for clinical development and product development activities and annual insurance policy payments.

Investing Activities

During the year ended December 31, 2019, net cash provided by investing activity was related to sales and maturities of marketable securities of \$117.7 million partially offset by the purchase of marketable securities of \$89.9 million and an increase in long-term deposits of \$1.2 million. During the year ended December 31, 2018, net cash used in investing activities was primarily related to the purchase of marketable securities of \$79.1 million. In addition, \$0.7 million and \$0.8 million was used for the purchase and construction of property and equipment during the years ended December 31, 2019 and 2018, respectively.

Financing Activities

During the ended December 31, 2019 net cash provided by financing activities was \$0.4 million related to the proceeds from exercise of stock options.

During the year ended December 31, 2018, net cash provided by financing activities was \$99.4 million consisting of the net proceeds from the issuance of common stock in connection with the IPO and from the issuance of shares of Series C preferred stock in February and March 2018.

Funding Requirements

We expect our expenses to increase in connection with our ongoing activities, particularly as we continue the research and development of, continue or initiate clinical trials of, and seek marketing approval for, our product candidates. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to sales, marketing, manufacturing and distribution. Furthermore, we expect to incur additional costs associated with operating as a public company. Accordingly, we may need to obtain additional funding in connection with our continuing operations. If we are unable to raise capital when needed or on attractive terms, we would be forced to delay, reduce or eliminate our research and development programs or future commercialization efforts.

We believe the \$35 million we borrowed in March 2020 in combination with existing cash, cash equivalents, and marketable securities will be sufficient to support our planned operations, which include expenses for the commercialization of YCANTH™, if approved, and continued full clinical development of VP-102 for additional indications, including common warts and external genital warts, as well as VP-103 for plantar warts, at least through the second quarter of 2021. Our future capital requirements will depend on many factors, including:

- the scope, progress, results and costs of our clinical trials;
- the scope, prioritization and number of our research and development programs;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- the extent to which we acquire or in-license other product candidates and technologies;
- the costs to scale up and secure manufacturing arrangements for commercial production; and

- the costs of establishing or contracting for sales and marketing capabilities if we obtain regulatory approvals to market our product candidates.

Identifying potential product candidates and conducting preclinical studies and clinical trials is a time-consuming, expensive and uncertain process that takes many years to complete, and we may never generate the necessary data or results required to obtain marketing approval and achieve product sales. In addition, our product candidates, if approved, may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of a product candidate that we do not expect to be commercially available in the near term, if at all. We may not achieve significant revenue from product sales prior to the use of the net proceeds from our IPO. Accordingly, we may 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.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, ownership interests of existing stockholders may be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect our existing stockholders' rights. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends.

If we raise funds through additional collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or to grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Contractual Obligations and Commitments

On July 16, 2018, we entered into a supply agreement with our raw material supplier. This agreement does not require any future purchases but does provide for limited geographic exclusivity in exchange for minimum annual purchases. During 2019, we issued a single purchase order covered under the terms of the supply agreement totaling approximately \$1.8 million. As of December 31, 2019, we made a prepayment of approximately \$1.1 million against this purchase order. In January 2020, we received the initial shipment of material. We have a remaining outstanding obligation of another \$0.7 million under the terms of this purchase order for material which we anticipate receiving during the first half of 2020.

On April 9, 2018, we entered into an agreement to sublease 4,962 square feet of office space in West Chester, Pennsylvania. The agreement requires annual rental payments of approximately \$0.1 million and is scheduled to expire on May 31, 2021.

On July 1, 2019, we entered into a lease for 5,829 square feet of office space located in West Chester, Pennsylvania that is expected to serve as our new headquarters beginning in mid-2020. The initial term of the lease is seven years with one five-year renewal option and an ongoing right of first offer to lease up to approximately 5,000 square feet of additional space on the same floor of the building. Base rent over the initial lease term is \$1.3 million, and we are also responsible for our share of the landlord's operating expenses.

On March 10, 2020, we entered into the Mezzanine Loan Agreement, pursuant to which the Mezzanine Lenders have agreed to lend the Company up to \$50.0 million in a series of term loans, and the Senior Loan Agreement with Senior Lender, pursuant to which the Senior Lender has agreed to provide us a revolving line of credit of up to \$5.0 million subject to the borrowing base. Upon entering into the Loan Agreements, we borrowed \$35.0 million in term loans from the Mezzanine Lenders.

Under the terms of the Mezzanine Loan Agreement, we may, at our sole discretion, borrow from the Mezzanine Lenders up to an additional \$15.0 million in term loans, or the Term B Loan, and together with the Term

A Loan, the Term Loans, upon our achievement of (i) a specified amount in trailing six-month net revenue and (ii) a specified amount raised in equity, or collectively, the Term B Milestone. We may draw the Term B Loan during the period commencing on the date of the occurrence of the Term B Milestone and ending on the earliest of (i) December 31, 2021 and (ii) the occurrence of an event of default.

All of the Term Loans mature on March 1, 2024, or the Maturity Date. The Term Loans will be interest-only through March 31, 2022, followed by 24 equal monthly payments of principal and interest; *provided* that if we draw the Term B Loan, the Term Loans will be interest-only through September 30, 2022, followed by 18 equal monthly payments of principal and interest. The Term Loans bear interest at a floating per annum rate equal to the greater of (i) 7.25% and (ii) the sum of (a) the prime rate reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue, plus (b) 2.50%. The Revolving Loans will bear interest at a floating per annum rate equal to the greater of (i) 6.00% and (ii) the sum of (a) the prime rate reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue, plus (b) 1.25%.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined under SEC rules.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates, particularly because our investments, including cash equivalents and marketable securities, are in the form of U.S. Treasury securities, asset-backed securities, and commercial paper. Our marketable securities are subject to interest rate risk and will fall in value if market interest rates increase. However, due to the short-term nature and low-risk profile of our investment portfolio, we do not expect that an immediate 100 basis point change in market interest rates would have a material effect on the fair market value of our investment portfolio. We have the ability to hold our marketable securities until maturity, and therefore we would not expect our operating results or cash flows to be affected to any significant degree by the effect of a change in market interest rates on our investments. In addition, our outstanding debt instruments entered into on March 10, 2020 carry a floating interest rate that is equal to the greater of (i) 7.25% and (ii) the sum of (a) the prime rate reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue, plus (b) 2.50%.

We are also exposed to market risk related to changes in foreign currency exchange rates. We contract with vendors that are located outside of the United States, including in China, and certain invoices are denominated in foreign currencies. We are subject to fluctuations in foreign currency rates in connection with these arrangements. We do not currently hedge our foreign currency exchange rate risk. As of December 31, 2019, we had minimal or no liabilities denominated in foreign currencies, but our purchase order with a supplier, pursuant to which we agreed to purchase approximately \$1.8 million of crude cantharidin material, is denominated in Chinese yuan. As of December 31, 2019, we had a prepayment of approximately \$1.1 million and \$0.7 million remains outstanding and unpaid under this purchase order.

Inflation generally affects us by increasing our cost of labor and clinical trial costs. We do not believe that inflation had a material effect on our business, financial condition or results of operations during the year ended December 31, 2019.

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Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors
Verrica Pharmaceuticals Inc.:

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Verrica Pharmaceuticals Inc. (the Company) as of December 31, 2019 and 2018, the related statements of operations and comprehensive loss, convertible preferred stock and stockholders' equity (deficit), and cash flows for the years then ended, and the related notes (collectively, the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for the years then ended, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the 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.

/s/ KPMG LLP

We have served as the Company's auditor since 2017.

Philadelphia, Pennsylvania
March 13, 2020

VERRICA PHARMACEUTICALS INC.
BALANCE SHEETS
(in thousands, except share and per share amounts)

	December 31,	
	2019	2018
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 9,241	\$ 10,271
Marketable securities	52,776	79,538
Prepaid expenses and other assets	2,966	1,343
Total current assets	64,983	91,152
Property and equipment, net	2,090	255
Operating lease right-of-use asset	111	—
Deposits	1,240	499
Total assets	\$ 68,424	\$ 91,906
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 1,185	\$ 922
Accrued expenses	2,036	1,517
Operating lease liability	130	—
Accounts payable and accrued expenses - related party	—	38
Total current liabilities	3,351	2,477
Operating lease liability	58	—
Total liabilities	3,409	2,477
Commitments and Contingencies (Note 7)		
Stockholders' equity:		
Preferred stock, \$0.0001 par value; 10,000,000 shares authorized; no shares issued and outstanding as of December 31, 2019 and 2018	—	—
Common stock, \$0.0001 par value; 200,000,000 authorized as of December 31, 2019 and 2018; 25,912,137 shares issued and 25,786,330 shares outstanding as of December 31, 2019 and 25,809,900 shares issued and 25,704,756 shares outstanding as of December 31, 2018	3	3
Treasury stock, at cost, 105,144 shares as of December 31, 2019 and 2018	—	—
Additional paid-in capital	126,594	122,526
Subscription receivable	(410)	—
Accumulated deficit	(61,192)	(33,083)
Accumulated other comprehensive gain/(loss)	20	(17)
Total stockholders' equity	65,015	89,429
Total liabilities and stockholders' equity	\$ 68,424	\$ 91,906

The accompanying notes are an integral part of these financial statements.

VERRICA PHARMACEUTICALS INC.
STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(in thousands, except share and per share amounts)

	For the Year Ended December 31,	
	2019	2018
Operating expenses:		
Research and development	\$ 15,436	\$ 12,826
General and administrative	14,644	9,052
Total operating expenses	<u>30,080</u>	<u>21,878</u>
Loss from operations	<u>(30,080)</u>	<u>(21,878)</u>
Other income (expense):		
Interest income	1,877	1,231
Other expense	(4)	(1)
Total other income	<u>1,873</u>	<u>1,230</u>
Net loss	<u>\$ (28,207)</u>	<u>\$ (20,648)</u>
Net loss per share, basic and diluted	<u>\$ (1.13)</u>	<u>\$ (1.41)</u>
Weighted average common shares outstanding, basic and diluted	<u>24,897,889</u>	<u>14,662,751</u>
Net loss	\$ (28,207)	\$ (20,648)
Other comprehensive loss:		
Unrealized gain/(loss) on marketable securities	37	(17)
Comprehensive loss	<u>\$ (28,170)</u>	<u>\$ (20,665)</u>

The accompanying notes are an integral part of these financial statements.

VERRICA PHARMACEUTICALS INC.
STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)
(in thousands, except share amounts)

	Series A Convertible Preferred Stock		Series B Convertible Preferred Stock		Series C Convertible Preferred Stock		Common Stock		Additional Paid In Capital	Subscription Receivable	Accumulated Deficit	Treasury Stock		Accumulated Other Comprehensive Loss	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount	Shares	Amount	Shares Issued	Amount				Shares	Cost		
Balance as of December 31, 2017	21,302,972	\$ 10,508	1,937,984	\$ 5,000	—	\$ —	3,804,643	\$ —	\$ 5,394	\$ —	\$ (12,435)	105,144	\$ —	\$ —	\$ (7,041)
Stock-based compensation	—	—	—	—	—	—	—	—	2,251	—	—	—	—	—	2,251
Exercise of stock options	—	—	—	—	—	—	8,385	—	7	—	—	—	—	—	7
Conversion of preferred stock into common stock	(21,302,972)	(10,508)	(1,937,984)	(5,000)	(4,606,267)	(20,993)	16,246,872	2	36,499	—	—	—	—	—	36,501
Series C convertible preferred stock	—	—	—	—	4,606,267	21,000	—	—	—	—	—	—	—	—	—
Issuance costs for Series C preferred	—	—	—	—	—	(7)	—	—	—	—	—	—	—	—	—
Issuance of common stock in connection with IPO, net of offering costs	—	—	—	—	—	—	5,750,000	1	78,375	—	—	—	—	—	78,376
Net Loss	—	—	—	—	—	—	—	—	—	—	(20,648)	—	—	—	(20,648)
Unrealized loss on marketable securities	—	—	—	—	—	—	—	—	—	—	—	—	—	(17)	(17)
Balance as of December 31, 2018	—	—	—	—	—	—	25,809,900	3	122,526	—	(33,083)	105,144	—	(17)	89,429
Stock-based compensation	—	—	—	—	—	—	—	—	3,333	—	—	—	—	—	3,333
Exercise of stock options	—	—	—	—	—	—	74,908	—	423	—	—	—	—	—	423
Subscription receivable (Note 9)	—	—	—	—	—	—	27,329	—	410	(410)	—	—	—	—	—
Adoption of ASU 2018-07 (Note 2)	—	—	—	—	—	—	—	—	(98)	—	98	—	—	—	—
Net loss	—	—	—	—	—	—	—	—	—	—	(28,207)	—	—	—	(28,207)
Unrealized gain on marketable securities	—	—	—	—	—	—	—	—	—	—	—	—	—	37	37
Balance as of December 31, 2019	—	\$ —	—	\$ —	—	\$ —	25,912,137	\$ 3	\$ 126,594	\$ (410)	\$ (61,192)	105,144	\$ —	\$ 20	\$ 65,015

The accompanying notes are an integral part of these financial statements.

VERRICA PHARMACEUTICALS INC.
STATEMENTS OF CASH FLOWS
(in thousands)

	For the Year Ended December 31,	
	2019	2018
Cash flows from operating activities		
Net loss	\$ (28,207)	\$ (20,648)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	3,333	2,251
Accretion of discounts on marketable securities	(1,063)	(435)
Depreciation expense	64	20
Amortization on operating lease right-of-use asset	193	—
Changes in operating assets and liabilities:		
Prepaid expenses and other assets	(1,621)	(923)
Accounts payable	263	769
Accrued expenses	(213)	1,068
Accounts payable and accrued expenses - related party	(38)	24
Operating lease liability	(119)	—
Net cash used in operating activities	<u>(27,408)</u>	<u>(17,874)</u>
Cash flows from investing activities		
Purchases of marketable securities	(89,854)	(79,120)
Sales and maturities of marketable securities	117,715	—
Purchases of property, plant and equipment	(682)	(774)
Increase in deposits	(1,224)	—
Net cash provided by (used in) investing activities	<u>25,955</u>	<u>(79,894)</u>
Cash flows from financing activities		
Proceeds from the issuance of common stock in connection with IPO	—	86,250
Payment of offering cost in connection with issuance of common stock in connection with IPO	—	(7,874)
Proceeds from exercise of stock options	423	7
Proceeds received from issuance of Series C preferred stock	—	21,000
Stock issuance costs related to Series C preferred stock	—	(7)
Net cash provided by financing activities	<u>423</u>	<u>99,376</u>
Net (decrease) increase in cash and cash equivalents	(1,030)	1,608
Cash and cash equivalents at the beginning of the year	10,271	8,663
Cash and cash equivalents at the end of the year	<u>\$ 9,241</u>	<u>\$ 10,271</u>
Supplemental disclosure of cash flow information:		
Cash paid for interest	\$ —	\$ —
Supplemental disclosure of noncash investing and financing activities:		
Change in unrealized gain/(loss) on marketable securities	\$ 37	\$ (17)
Subscription receivable on exercise of options	\$ 410	\$ —
Conversion of preferred stock into common stock	\$ —	\$ 36,501
Accrual for purchases of property, plant and equipment	\$ 733	\$ —

The accompanying notes are an integral part of these financial statements.

VERRICA PHARMACEUTICALS INC.
Notes to Financial Statements

Note 1—Organization and Description of Business Operations

Verrica Pharmaceuticals Inc. (the “Company”) was formed on July 3, 2013 and is incorporated in the State of Delaware. The Company is a dermatology therapeutics company committed to the development and commercialization of novel treatments that provide meaningful benefit for people living with skin diseases.

Reverse Stock Split

On June 4, 2018, the Company effected a 1.714-for-one reverse stock split of Company’s common stock. No fractional shares were issued in connection with the stock split. The par value and other terms of the common stock were not affected by the stock split.

All share and per share amounts, including stock options, have been retroactively adjusted in these financial statements for all periods presented to reflect the 1.714-for-one reverse stock split. Further, exercise prices of stock options have been retroactively adjusted in these financial statements for all periods presented to reflect the 1.714-for-one reverse stock split. The number of shares of the Company’s preferred stock were not affected by the reverse stock split; however, the conversion ratios were adjusted to reflect the reverse stock split.

Liquidity and Capital Resources

The Company has incurred substantial operating losses since inception and expects to continue to incur significant operating losses for the foreseeable future and may never become profitable. As of December 31, 2019, the Company had an accumulated deficit of \$61.2 million.

On February 20, 2018 and March 7, 2018, the Company issued an aggregate of 4,606,267 shares of Series C convertible preferred stock, at an issuance price of \$4.559 per share, for gross proceeds of \$21.0 million.

On June 19, 2018, the Company completed an initial public offering (“IPO”) of its common stock, which resulted in the issuance and sale of 5,750,000 shares of its common stock at a public offering price of \$15.00 per share, generating net proceeds of \$78.4 million after deducting underwriting discounts and other offering costs. Upon the closing of the IPO, all outstanding shares of the Company’s Series A, Series B and Series C convertible preferred stock were automatically converted into 16,246,872 shares of the Company’s common stock. In addition, upon the closing of the IPO, the Company’s amended and restated certificate of incorporation authorized the Company to issue up to 200,000,000 shares of common stock, \$0.0001 par value per share, and 10,000,000 shares of preferred stock, \$0.0001 par value per share, all of which shares of preferred stock are undesignated.

Note 2—Significant Accounting Policies

Basis of Presentation

The accompanying financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America (“GAAP”). Any reference in these notes to applicable guidance is meant to refer to the authoritative United States generally accepted accounting principles as found in the Accounting Standards Codification (“ASC”) and Accounting Standards Update (“ASU”) of the Financial Accounting Standards Board (“FASB”). The Company’s functional currency is the U.S. dollar.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of expenses during the reporting period. The most significant estimates in the Company's financial statements relate to the valuation of common stock and stock options. These estimates and assumptions are based on current facts, historical experience and various other factors believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities and the recording of expenses that are not readily apparent from other sources. Actual results may differ materially and adversely from these estimates. To the extent there are material differences between the estimates and actual results, the Company's future results of operations will be affected.

Segments

Operating segments are identified as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision-maker in making decisions regarding resource allocation and assessing performance. The Company views its operations and manages its business in one operating segment.

Cash, Cash Equivalents and Marketable Securities

The Company considers all highly liquid investments purchased with original maturities of 90 days or less at acquisition to be cash equivalents. Cash and cash equivalents include cash held in banks and money market mutual funds.

The Company classifies its marketable securities as "available-for-sale", pursuant to ASC 320, *Investments—Debt and Equity Securities*, carries them at fair market value and classifies them as current assets on its balance sheets. There were no marketable securities with a maturity of greater than one year as of December 31, 2019. Unrealized gains and losses on marketable debt securities are recorded as a separate component of accumulated other comprehensive loss included in stockholders' equity.

Concentrations of Credit Risk and Off-Balance Sheet Risk

Cash, cash equivalents and marketable securities are financial instruments that are potentially subject to concentrations of credit risk. The Company's deposits are in accounts at large financial institutions, and amounts may exceed federally insured limits. The Company believes it is not exposed to significant credit risk due to the financial strength of the depository institutions in which the funds are held. The Company has no financial instruments with off-balance sheet risk of loss.

Property and Equipment

Property and equipment is recorded at cost less accumulated depreciation. Depreciation and amortization is calculated using the straight line method over the expected useful life of the asset, after the asset is placed in service. The Company generally uses the following depreciable lives for its major classifications of property and equipment:

Description	Useful Lives
Equipment	5 years
Leasehold Improvements	Lease term
Office Furniture and Fixtures	3 years

Expenditures associated with upgrades and enhancements that improve, add functionality, or otherwise extend the life of property and equipment are capitalized, while expenditures that do not, such as repairs and maintenance, are expensed as incurred.

The Company reviews long-lived assets, including property and equipment, for impairment whenever events or changes in business circumstances indicate that the carrying amount of an asset may not be fully recoverable. If the estimated undiscounted future cash flows expected to result from the use of the asset and its eventual disposition is less than its carrying amount, an impairment loss would be recognized if the carrying value of the asset exceeds its fair value. Fair value is generally determined using discounted cash flows. No impairment losses have been recorded since inception.

Research and Development Costs

The Company's research and development expenses consist primarily of costs associated with the Company's clinical trials, salaries, payroll taxes, employee benefits, and equity-based compensation charges for those individuals involved in ongoing research and development efforts. Research and development costs are expensed as incurred. Advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made.

Fair Value Measurement

ASC 820, *Fair Value Measurements*, provides guidance on the development and disclosure of fair value measurements. Under this accounting guidance, fair value is defined as an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or a liability.

The accounting guidance classifies fair value measurements in one of the following three categories for disclosure purposes:

Level 1: Quoted prices in active markets for identical assets or liabilities.

Level 2: Inputs other than Level 1 prices for similar assets or liabilities that are directly or indirectly observable in the marketplace.

Level 3: Unobservable inputs which are supported by little or no market activity and values determined using pricing models, discounted cash flow methodologies, or similar techniques, as well as instruments for which the determination of fair value requires significant judgment or estimation.

Comprehensive Loss

Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions, and other events and circumstances from non-owner sources. For the year ended December 31, 2019, comprehensive loss includes net loss and unrealized gain (loss) on marketable securities.

Stock-Based Compensation

The Company accounts for stock-based compensation awards in accordance with ASC 718, *Compensation – Stock Compensation*. The Company uses the Black-Scholes option-pricing model to value its stock option awards. For stock-based awards granted to employees, non-employees and to members of the board of directors for their services, the Company estimates the grant date fair value of each option award and recognizes employee compensation expense on a straight-line basis over the vesting period of the award.

The use of the Black-Scholes option-pricing model requires management to make assumptions with respect to the expected term of the option, the expected volatility of the common stock consistent with the expected life of the option, risk-free interest rates, and, for grants prior to the Company's IPO, the value of the common stock. The expected life of stock options was estimated using the "simplified method," as the Company has limited historical information to develop reasonable expectations about future exercise patterns and post-vesting employment termination behavior for its stock options grants. The simplified method is based on the average of the vesting tranches and the contractual life of each grant. The Company historically has been a private company and lacks

company-specific historical and implied volatility information. Therefore, it estimates its expected stock volatility based on the historical volatility of a publicly traded set of peer companies. The risk-free interest rate is based on U.S. Treasury notes with a term approximating the expected life of the option. Expected dividend yield is zero based on the fact that the Company has never paid cash dividends and does not expect to pay any cash dividends in the foreseeable future.

The fair value of restricted stock awards are based on the closing price of the Company's common stock on the grant date.

Income Taxes

Income taxes are recorded in accordance with ASC 740, *Income Taxes*, which provides for deferred taxes using an asset and liability approach. The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements or tax returns. Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. Valuation allowances are provided, if based upon the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

The Company accounts for uncertain tax positions in accordance with the provisions of ASC 740. When uncertain tax positions exist, the Company recognizes the tax benefit of tax positions to the extent that the benefit would more likely than not be realized assuming examination by the taxing authority. The determination as to whether the tax benefit will more likely than not be realized is based upon the technical merits of the tax position as well as consideration of the available facts and circumstances.

Net Loss Per Share

Net loss per share of common stock is computed by dividing net loss attributable to common stockholders by the weighted average number of shares of common stock outstanding for the period. Diluted net loss per share excludes the potential impact of common stock options and unvested shares of restricted stock because their effect would be anti-dilutive due to the Company's net loss. Since the Company had a net loss in each of the periods presented, basic and diluted net loss per common share are the same.

The table below provides potential shares outstanding that were not included in the computation of diluted net loss per common share, as the inclusion of these securities would have been anti-dilutive:

	As of December 31,	
	2019	2018
Shares issuable upon exercise of stock options	1,914,545	1,529,883
Non-vested shares under restricted stock grants	1,148,859	848,859

Recently Adopted Accounting Pronouncements

In June 2018, the FASB issued ASU No. 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting*, which simplifies the accounting for share-based payments granted to nonemployees for goods and services. Under the ASU, most of the guidance on such payments to nonemployees would be aligned with the requirements for share-based payments granted to employees. The changes take effect for public companies for fiscal years starting after December 15, 2018, including interim periods within that fiscal year. The Company adopted this ASU as of January 1, 2019 and recorded an adjustment to accumulated deficit and additional paid-in capital of \$98,000.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)* in order to increase transparency and comparability among organizations by, among other provisions, recognizing lease assets and lease liabilities on the balance sheet for those leases classified as operating leases under previous GAAP. For public companies, ASU 2016-02 is effective for fiscal years beginning after December 15, 2018 (including interim periods within those periods) using a modified retrospective approach and early adoption is permitted. In transition, entities may also

elect a package of practical expedients that must be applied in its entirety to all leases commencing before the adoption date, unless the lease is modified, and permits entities to not reassess (a) the existence of a lease, (b) lease classification or (c) determination of initial direct costs, as of the adoption date, which effectively allows entities to carryforward accounting conclusions under previous GAAP. In July 2018, the FASB issued ASU 2018-11, *Leases (Topic 842): Targeted Improvements*, which provides entities an optional transition method to apply the guidance under Topic 842 as of the adoption date, rather than as of the earliest period presented. The Company adopted Topic 842 on January 1, 2019, using the optional transition method to apply the new guidance as of January 1, 2019, rather than as of the earliest period presented, and elected the package of practical expedients described above. Based on the analysis, on January 1, 2019, the Company recorded an operating lease right-of-use asset of \$304,000 and an operating lease liability of \$306,000 and eliminated deferred rent of \$2,000. See Note 10 for additional information.

Recently Issued Accounting Pronouncements Not Yet Adopted

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*, which makes a number of changes meant to add, modify or remove certain disclosure requirements associated with the movement amongst or hierarchy associated with Level 1, Level 2 and Level 3 fair value measurements. This guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. Early adoption is permitted upon issuance of the update. The Company does not expect the adoption of this guidance to have a material impact on its financial statements.

In August 2018, the FASB issued ASU 2018-15, *Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement that is a Service Contract*, which aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The guidance also requires the entity to expense the capitalized implementation costs of a hosting arrangement that is a service contract over the term of the hosting arrangement, which includes reasonably certain renewals. The guidance becomes effective for the Company in the year ending December 31, 2020 and early adoption is permitted. The Company does not expect the adoption of this guidance to have a material impact on its financial statements.

Note 3—Investments in Marketable Securities

Investments in marketable securities consisted of the following as of December 31, 2019 and 2018 (in thousands):

	December 31, 2019			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
U.S. treasury securities	\$ 7,397	\$ 3	\$ —	\$ 7,400
Commercial paper	31,913	7	(1)	31,919
Asset-backed securities	13,446	11	—	13,457
Total marketable securities	<u>\$ 52,756</u>	<u>\$ 21</u>	<u>\$ (1)</u>	<u>\$ 52,776</u>

	December 31, 2018			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
U.S. treasury securities	\$ 17,028	\$ —	\$ (2)	\$ 17,026
Commercial paper	48,623	5	(4)	48,624
Asset-backed securities	13,904	—	(16)	13,888
Total marketable securities	<u>\$ 79,555</u>	<u>\$ 5</u>	<u>\$ (22)</u>	<u>\$ 79,538</u>

Unrealized gains and losses on marketable securities are recorded as a separate component of accumulated other comprehensive gain (loss) included in stockholders’ equity. Realized gains (losses) are included in interest

income (expense) in the statement of operations and comprehensive loss on a specific identification basis. The Company did not record any realized gains or losses during the years ended December 31, 2019 and 2018. To date, the Company has not recorded any impairment charges on marketable securities related to other-than-temporary declines in market value.

Accretion of bond discount on marketable securities and interest income on marketable securities is recorded as interest income on the statement of operations and comprehensive loss.

There were no marketable securities with a maturity of greater than one year for either period presented. Unrealized gains and losses on marketable debt securities are recorded as a separate component of accumulated other comprehensive gain (loss) included in stockholders' equity.

The following tables presents fair value by level in accordance with ASC 820 (see Note 2) of the Company's marketable securities (in thousands):

	Fair Value Measurement as of December 31, 2019			
	Level 1	Level 2	Level 3	Total
U.S. treasury securities	\$ 7,400	\$ —	\$ —	\$ 7,400
Commercial paper	—	31,919	—	31,919
Asset-backed securities	—	13,457	—	13,457
Total	\$ 7,400	\$ 45,376	\$ —	\$ 52,776

	Fair Value Measurement as of December 31, 2018			
	Level 1	Level 2	Level 3	Total
U.S. treasury securities	\$ 17,026	\$ —	\$ —	\$ 17,026
Commercial paper	—	48,624	—	48,624
Asset-backed securities	—	13,888	—	13,888
Total	\$ 17,026	\$ 62,512	\$ —	\$ 79,538

Note 4—Property and Equipment

Property and equipment, net consisted of (in thousands):

	As of December 31,	
	2019	2018
Leasehold improvements	\$ 68	\$ 68
Office furniture and fixtures	48	48
Office equipment	31	28
Construction in process	2,027	131
	2,174	275
Accumulated depreciation	(84)	(20)
Total property and equipment, net	\$ 2,090	\$ 255

Depreciation expense for the years ended December 31, 2019 and 2018 was \$64,200 and \$20,300, respectively.

The Company has recorded an asset classified as construction in process associated with the construction of a product packaging line that would be placed into service for commercial manufacturing upon future regulatory product approval.

Note 5—Related Party Transactions

Prior to the IPO, the Company was controlled by PBM VP Holdings, LLC (“PBM VP Holdings”) an affiliate of PBM Capital Group, LLC (“PBM”). Paul B. Manning, who is the Chairman and Chief Executive Officer of PBM and the current chairman of the Company’s Board of Directors, and certain entities affiliated with Mr. Manning, continue to be the Company’s largest shareholder on a collective basis.

On December 2, 2015, the Company entered into a Services Agreement (a “SA”) with PBM. Pursuant to the terms of the SA, which had an initial term of twelve months (and was automatically renewable for successive monthly periods), PBM rendered advisory and consulting services to the Company. Services provided under the SA included certain business development, operations, technical, contract, accounting and back office support services. In consideration for these services, the Company was obligated to pay PBM a monthly management fee of \$2,500. On March 29, 2018, the Company amended the SA with PBM, effective as of April 1, 2018, increasing the monthly fee to \$50,000. On January 1, 2019 and October 1, 2019, the SA was amended to reduce the monthly management fee to \$26,333 and \$5,000, respectively, as a result of a reduction in services provided by PBM.

For the years ended December 31, 2019 and 2018, the Company incurred expenses under the SA of \$252,000 and \$457,500, respectively, which were primarily included in general and administrative expenses.

As of December 31, 2019 and 2018, the Company had payables due to PBM and its affiliates of \$0 and \$38,000, respectively. These balances include amounts due for other miscellaneous expenses incurred by PBM and its affiliates.

Note 6—Accrued Expenses

Accrued expenses consisted of the following (in thousands):

	As of December 31,	
	2019	2018
Compensation and related costs	\$ 1,195	\$ 1,261
Clinical trials and drug development	733	—
Consulting - former Chief Scientific Officer	—	190
Professional fees	89	56
Other	19	10
Total accrued expenses	<u>\$ 2,036</u>	<u>\$ 1,517</u>

Note 7—Commitments and Contingencies

Litigation

As of December 31, 2019 and 2018, there was no litigation against the Company.

Supply Agreement and Purchase Order

On July 16, 2018, the Company entered into a supply agreement with a supplier of crude cantharidin material. All executed purchase orders for crude cantharidin in the ordinary course of business are expected to be covered under the terms of the supply agreement. Pursuant to the supply agreement, the supplier has agreed that it will not supply cantharidin, any beetles or other raw material from which cantharidin is derived to any other customer in

North America, subject to specified minimum annual purchase orders and forecasts by the Company. The supply agreement has an initial five-year term, which is subject to automatic renewal absent termination by either party in accordance with the terms of the supply agreement. Each party also has the right to terminate the supply agreement for other customary reasons such as material breach or bankruptcy.

On March 22, 2018, the Company executed a purchase order with a supplier, denominated in Chinese yuan, pursuant to which the Company agreed to purchase \$2.3 million of crude cantharidin material. As of December 31, 2019, this purchase order was fulfilled and the Company has no remaining obligation.

During 2019, the Company executed a single purchase order pursuant to which the Company agreed to purchase \$1.8 million of crude cantharidin material. As of December 31, 2019, the Company had made a prepayment of \$1.1 million against this purchase order. In January 2020, the Company received the initial shipment of material. The Company has a remaining outstanding obligation of \$0.7 million for crude cantharidin material under this purchase order.

Agreements with Former Chief Scientific Officer

On May 31, 2018, the Company and the former Chief Scientific Officer (“CSO”) executed a transition agreement related to his resignation from employment as well as a Consulting Agreement (the “Consulting Agreement”) that began upon the closing of the IPO.

The Consulting Agreement provides for cash payments to the former CSO of \$29,375 per month for the first 12 months of the agreement. After the first 12 months, the former CSO will receive \$300 per hour for each hour of consulting services provided. As of December 31, 2019 and 2018, \$0 and \$0.2 million, respectively, remained accrued under this Consulting Agreement.

Note 8—Stockholders’ Equity

Common Stock

The Company had authorized 200,000,000 shares of common stock, \$0.0001 par value per share, as of each of December 31, 2019 and 2018. Each share of common stock is entitled to one vote. Common stock owners are entitled to dividends when funds are legally available and declared by the Board.

Restricted Stock

Pursuant to an Amended and Restated Stock Purchase Agreement (the “Amended and Restated Agreement”) between the Company and the former CSO, 848,859 shares held by the former CSO are subject to repurchase by the Company at \$0.0001 per share in the event the CSO ceases to be a consultant. These shares will be released from the repurchase option on the earliest to occur of (i) a change in control, (ii) regulatory approval of the Company’s new drug application for VP-102 for the treatment of molluscum, (iii) commercial sale of products and (iv) a covered termination, as defined in the Amended and Restated Agreement. No compensation expense has been recognized for these nonvested shares as these shares are performance-based and the triggering event was not determined to be probable as of December 31, 2019. See Note 9.

On November 27, 2019, the Company granted 300,000 restricted stock units to its executive officers. The restricted stock units vest 50% upon receipt of regulatory approval of the Company’s new drug application for VP-102 for the treatment of molluscum (the “Approval Date”) and 50% shall vest on the one year anniversary of the Approval Date subject to the holders’ continuous service through each applicable date.

Convertible Preferred Stock

Upon the closing of the IPO on June 19, 2018, all outstanding shares of the Company's Series A Preferred Stock were automatically converted into 12,428,773 shares of the Company's common stock and all outstanding shares of the Company's Series B Preferred Stock were automatically converted in to 1,130,679 shares of the Company's common stock.

On February 20, 2018 and March 7, 2018, the Company issued and sold an aggregate of 4,606,267 shares of Series C Preferred Stock, at an issuance price of \$4.559 per share, for aggregate gross proceeds of \$21.0 million. Upon the closing of the IPO on June 19, 2018, all outstanding shares of the Company's Series C Preferred Stock were automatically converted into 2,687,420 shares of the Company's common stock.

The Company classified its Convertible Preferred Stock outside of stockholders' deficit because redemption of the Convertible Preferred Stock, upon a deemed liquidation event, was not solely within the Company's control.

Note 9—Stock-Based Compensation

In June 2018, the Board adopted and approved the 2018 Equity Incentive Plan (the "2018 Plan"), which amended and restated the Company's prior 2013 Equity Incentive Plan (the "2013 Plan") and became effective in connection with the IPO pricing on June 19, 2018. Prior to the effectiveness of the 2018 Plan, the 2013 Plan provided for the grant of share-based awards to employees, directors and consultants of the Company. As a result of the effectiveness of the 2018 Plan, no further grants may be made under the 2013 Plan.

The 2018 Plan provides for the grant of incentive stock options to employees, and for the grant of nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance-based stock awards and other forms of stock awards to employees, including officers, consultants and directors. The 2018 Plan also provides for the grant of performance-based cash awards to employees, including officers, consultants and directors. The Company initially reserved 3,738,199 shares of common stock for issuance under the 2018 Plan, which is the sum of (1) 2,198,198 new shares, plus (2) the number of shares reserved for issuance under the 2013 Plan at the time the 2018 Plan became effective, plus (3) any shares subject to outstanding stock options or other stock awards that would have otherwise returned to the 2013 Plan (such as upon the expiration or termination of a stock award prior to exercise). The number of shares of common stock reserved for issuance under the 2018 Plan will automatically increase on January 1 each year, for a period of ten years, from January 1, 2019 through January 1, 2028, by 4% of the total number of shares of the Company's common stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares as may be determined by the Board. As of December 31, 2019, 2,199,325 shares were available for grant under the 2018 Plan.

Stock Options

The Company's employee and non-employee stock options generally vest as follows: 25% after 12 months of continuous services and the remaining 75% on a ratable basis over a 36-month period from 12 months after the grant date. Stock options granted during the year ended December 31, 2019 have a maximum contractual term of 10 years. The stock options are subject to time vesting requirements through 2023, are nontransferable, and have term expiration dates set to expire through 2029.

The grant date fair value of employee and non-employee stock option awards is determined using the Black-Scholes option-pricing model. The following assumptions were used during the years ended December 31, 2019 and 2018 to estimate the fair value of employee and non-employee stock option awards:

	For the Year Ended December 31,	
	2019	2018
Exercise price	\$7.95 - \$14.65	\$6.52 - \$16.32
Risk-free rate of interest	1.42% - 2.56%	2.58% - 3.13%
Expected term (years)	5.98	6.15
Expected stock price volatility	72.1% - 78.3%	58.3% - 83.7%
Dividend yield	—	—
Weighted average grant date fair value	\$7.84	\$6.95

The following table summarizes the Company's employee and non-employee stock option activity under the 2013 Plan and 2018 Plan for the years ended December 31, 2019 and 2018:

	Number of shares	Weighted average exercise price	Weighted average remaining contractual life (in years)	Aggregate intrinsic value
Outstanding as of December 31, 2017	90,429	\$ 0.90		
Options granted	1,451,839	8.34		
Exercised	(8,385)	0.90		
Forfeited	(4,000)	16.32		
Outstanding as of December 31, 2018	1,529,883	8.03		
Options granted	830,918	11.57		
Exercised	(102,237)	8.15		
Forfeited	(344,019)	10.37		
Outstanding as of December 31, 2019	1,914,545	\$ 9.14	8.5	\$ 12,953,956
Options vested and exercisable as of December 31, 2019	616,994	\$ 7.21	7.9	\$ 5,362,458

The aggregate intrinsic value in the above table is calculated as the difference between fair value of the Company's common stock price and the exercise price of the stock options. The weighted average grant date fair value per share for the employee and non-employee stock options granted during the years ended December 31, 2019 and 2018 was \$7.84 and \$6.95, respectively. As of December 31, 2019, the total unrecognized compensation related to unvested employee and non-employee stock option awards granted was \$8.7 million, which the Company expects to recognize over a weighted-average period of 2.8 years.

The Company utilizes a designated broker to process exercises of stock options. In late December 2019, there was an exercise of 27,329 vested stock options for which the Company did not receive the net proceeds from the designated broker until early January 2020. The net proceeds have been reflected as a stock subscription receivable as of December 31, 2019 in the balance sheet.

Restricted Stock

Pursuant to an Amended and Restated Agreement between the Company and the former CSO, 848,859 shares held by the former CSO are subject to repurchase at \$0.0001 per share in the event the CSO ceases to be a consultant. See Note 8.

The following table summarizes restricted stock awards related to the Amended and Restated Agreement:

	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2017	848,859	\$ 0.33
Granted	—	—
Nonvested at December 31, 2018	848,859	0.33
Granted	—	—
Nonvested at December 31, 2019	848,859	\$ 0.33

On November 27, 2019, the Company granted 300,000 restricted stock units to its executive officers to key executives. The restricted stock units vest 50% upon receipt of regulatory approval of the Company's new drug application for VP-102 for the treatment of molluscum (the "Approval Date") and 50% shall vest on the one year anniversary of the Approval Date subject to the holders' continuous service through each applicable date.

No compensation expenses has been recognized for these nonvested restricted stock units and the shares subject to the Amended and Restated Agreement as these shares are performance based and the triggering event was not determined to be probable as of December 31, 2019. As of December 31, 2019, the total unrecognized compensation expense related to the restricted stock units and shares subject to the Amended and Restated Agreement was \$5.0 million.

Stock-based compensation expense, which includes expense for both employees and non-employees, has been reported in the Company's statements of operations for the years ended December 31, 2019 and 2018 as follows (in thousands):

	For the Year Ended December 31,	
	2019	2018
Research and development	\$ 609	\$ 359
General and administrative	2,724	1,892
Total stock-based compensation	\$ 3,333	\$ 2,251

Note 10—Leases

Effective January 1, 2019, the Company accounts for its leases under ASC 842, *Leases (Topic 842)*. Under this guidance, arrangements meeting the definition of a lease are classified as operating or financing leases and are recorded on the balance sheet as both a right-of-use asset and lease liability, calculated by discounting fixed lease payments over the lease term at the rate implicit in the lease, if available, otherwise at the Company's incremental borrowing rate. Lease liabilities are increased by interest and reduced by payments each period, and the right-of-use asset is amortized over the lease term. For operating leases, interest on the lease liability and the amortization of the right-of-use asset result in straight-line rent expense over the lease term. Variable lease expenses, if any, are recorded when incurred.

In calculating the right-of-use asset and lease liability, the Company elected to combine lease and non-lease components. The Company excludes short-term leases having initial terms of 12 months or less from the new guidance as an accounting policy election and recognizes rent expense on a straight-line basis over the lease term. The Company continues to account for leases in the prior period financial statements under the previous guidance in ASC 840, *Leases*.

The Company leases office space in West Chester, Pennsylvania under an agreement classified as an operating lease that expires in May 2021. The Company does not act as a lessor or have any leases classified as finance leases. On July 1, 2019, the Company entered into a lease for 5,829 square feet of office space located in West Chester, Pennsylvania that is expected to serve as the Company's new headquarters. The initial term of the lease is seven

years and the base rent over the initial term is \$1.3 million. The Company plans to vacate its existing headquarters space as soon as the new space is available which is currently expected on or around June 1, 2020. As a result, amortization of the right-of-use asset associated with the current property lease is now being amortized over the revised remaining useful life. In addition, the useful life of associated leasehold improvements has been accelerated to reflect the expected abandonment of the property, such that they will be fully amortized when the property is vacated.

As of December 31, 2019, the Company had an operating lease liability of \$188,000, of which \$130,000 was classified as current, and an operating right-of-use asset of \$111,000.

The components of lease expense are as follows (in thousands):

	For the Year Ended December 31,	
	2019	2018
Operating lease:		
Operating lease costs	\$ 211	\$ 98
Short-term lease costs	17	—
Total rent expense	<u>\$ 228</u>	<u>\$ 98</u>

Maturities of the Company's operating lease excluding short-term leases as of December 31, 2018:

2019	\$ 136
2020	139
2021	58
Total lease payments	<u>\$ 333</u>

Maturities of the Company's operating lease as of December 31, 2019, excluding short-term leases and the new headquarters lease in West Chester, which is estimated to commence in June 2020, are as follows (in thousands):

2020	\$ 139
2021	58
Total lease payments	197
Less imputed interest	(9)
Total rent expense	<u>\$ 188</u>

The remaining term of the Company's operating lease was 1.4 years and the discount rate used to measure the present value of the Company's operating lease liability was 6.75% as of December 31, 2019.

Note 11—Income Taxes

There is no provision for income taxes as the Company has incurred operating losses since inception and maintains a full valuation allowance against its deferred tax assets.

Differences between the provision (benefit) for income taxes and income taxes at the statutory federal income tax rate are as follows (in thousands):

	For the Year Ended December 31,	
	2019	2018
Tax computed at statutory federal income tax rate	\$ (5,923)	\$ (4,336)
State taxes, net of federal benefit	(2,312)	(1,478)
Permanent items	70	409
Other	(285)	(5)
Change in valuation allowance	8,450	5,410
Income tax provision (benefit)	\$ —	\$ —

Significant components of the Company's deferred tax assets and liabilities are as follows (in thousands):

	As of December 31,	
	2019	2018
Deferred tax assets:		
Net operating loss carryovers	\$ 14,370	\$ 6,909
Other	1,483	510
Total deferred tax assets	15,853	7,419
Less valuation allowance	(15,835)	(7,383)
Deferred tax asset, net of valuation allowance	18	36
Deferred tax liabilities:		
Fixed assets	(18)	(36)
Total deferred tax liabilities	(18)	(36)
Net deferred tax assets	\$ —	\$ —

The Company has determined, based upon all available evidence, that it is more likely than not that the net deferred tax asset will not be realized and, accordingly, has provided a full valuation allowance against its net deferred tax asset.

As of December 31, 2019, the Company had federal and state net operating loss carryforwards of approximately \$49.9 million and \$50.2 million, respectively. The federal net operating loss carryforwards included in the foregoing totals that were generated prior to 2018 (federal of approximately \$6.9 million) will begin to expire, if not utilized, by 2033. Under the 2017 federal income tax law changes, 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. In addition, under Section 382 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, 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 may be limited.

As of December 31, 2019 and 2018, the Company has uncertain tax positions related to federal and state income credits for its research and development activities. The total amount of unrecognized tax benefits was \$1.5 million and \$0.1 million as of December 31, 2019 and 2018. The Company will recognize interest and penalties, if any, related to uncertain tax positions in income tax expense. As of December 31, 2019 and 2018, the Company had no accrued interest or penalties related to uncertain tax positions and no amounts have been recognized in the Company's statement of operations. The Company does not anticipate a material change to unrecognized tax benefits in the next twelve months.

The 2016 and subsequent federal and state tax years for the Company remain open for the assessment of income taxes.

Note 12—Selected Quarterly Financial Data (Unaudited)

The following tables present the quarterly results of operations for 2019 and 2018 (in thousands, except share and per share amounts):

	For the Quarter Ended			
	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019
Operating expenses:				
Research and development	\$ 4,487	\$ 3,928	\$ 3,049	\$ 3,972
General and administrative	3,539	3,593	3,494	4,018
Total operating expenses	8,026	7,521	6,543	7,990
Loss from operations	(8,026)	(7,521)	(6,543)	(7,990)
Total other income	547	520	453	353
Net loss	\$ (7,479)	\$ (7,001)	\$ (6,090)	\$ (7,637)
Net loss per share, basic and diluted	\$ (0.30)	\$ (0.28)	\$ (0.24)	\$ (0.31)
Weighted average common shares outstanding, basic and diluted	24,857,771	24,875,573	24,893,036	24,922,080

	For the Quarter Ended			
	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018
Operating expenses:				
Research and development	\$ 927	\$ 3,515	\$ 3,467	\$ 4,917
General and administrative	961	1,955	2,865	3,271
Total operating expenses	1,888	5,470	6,332	8,188
Loss from operations	(1,888)	(5,470)	(6,332)	(8,188)
Total other income	41	153	426	610
Net loss	\$ (1,847)	\$ (5,317)	\$ (5,906)	\$ (7,578)
Net loss per share, basic and diluted	\$ (0.65)	\$ (0.92)	\$ (0.24)	\$ (0.30)
Weighted average common shares outstanding, basic and diluted	2,850,460	5,751,326	24,847,512	24,847,877

Note 13—Subsequent Event

On March 10, 2020 (the “Effective Date”), the Company entered into (i) a mezzanine loan and security agreement (the “Mezzanine Loan Agreement”) with Silicon Valley Bank, as administrative agent and collateral agent (the “Agent”), and Silicon Valley Bank and West River Innovation Lending Fund VIII, L.P., as lenders (the “Mezzanine Lenders”), pursuant to which the Mezzanine Lenders have agreed to lend the Company up to \$50.0 million in a series of term loans, and (ii) a loan and security agreement (the “Senior Loan Agreement”, and together with the Mezzanine Loan Agreement, the “Loan Agreements”) with Silicon Valley Bank, as lender (the “Senior Lender”, and together with the Mezzanine Lenders, the “Lenders”), pursuant to which the Senior Lender has agreed to provide the Company a revolving line of credit of up to \$5.0 million. Upon entering into the Loan Agreements, the Company borrowed \$35.0 million in term loans from the Mezzanine Lenders (the “Term A Loan”).

Under the terms of the Mezzanine Loan Agreement, the Company may, at its sole discretion, borrow from the Mezzanine Lenders up to an additional \$15.0 million in term loans (the “Term B Loan”, and together with the Term A Loan, the “Term Loans”) upon the Company’s achievement of (i) a specified amount in trailing six-month net revenue and (ii) an equity raise of at least \$40.0 million (the foregoing clauses (i) and (ii), collectively, the “Term B Milestone”). The Company may draw the Term B Loan during the period commencing on the date of the occurrence of the Term B Milestone and ending on the earliest of (i) December 31, 2021 and (ii) the occurrence of an event of default.

Under the terms of the Senior Loan Agreement, the Company may, at its sole discretion, borrow from the Senior Lender one or more advances on the revolving credit line (the "Revolving Loans", and together with the Term Loans, the "Loans") in an aggregate amount not to exceed the lesser of (i) 85% of the aggregate amount then-contained in the Company's eligible accounts receivable and (ii) \$5.0 million.

The Company's obligations under the Senior Loan Agreement and the Mezzanine Loan Agreement are secured by, respectively, a first priority perfected security interest and second priority perfected security interest in substantially all of the Company's current and future assets, other than its intellectual property (except rights to payment from the sale, licensing or disposition of such intellectual property). The Company has also agreed not to encumber its intellectual property assets, except as permitted by the Loan Agreements.

All of the Loans mature on March 1, 2024 (the "Maturity Date"). The Term Loans will be interest-only through March 31, 2022, followed by 24 equal monthly payments of principal and interest; *provided* that if the Company draws the Term B Loan, the Term Loans will be interest-only through September 30, 2022, followed by 18 equal monthly payments of principal and interest. The Term Loans will bear interest at a floating per annum rate equal to the greater of (i) 7.25% and (ii) the sum of (a) the prime rate reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue, plus (b) 2.50%. The Revolving Loans will bear interest at a floating per annum rate equal to the greater of (i) 6.00% and (ii) the sum of (a) the prime rate reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue, plus (b) 1.25%.

The Company will be required to make a final payment of 7.50% of the original principal amount of the Term Loans drawn payable on the earlier of (i) the Maturity Date, (ii) the acceleration of any Term Loans, or (iii) the prepayment of the Term Loans (the "Final Payment"). The Company may prepay all, or any portion (in increments of at least \$1.0 million), of the Term Loans upon 5 business days' advance written notice to the Agent, provided that the Company will be obligated to pay a prepayment fee equal to (i) 3.00% of the principal amount of the applicable Term Loan prepaid on or before the first anniversary of the Effective Date, (ii) 2.00% of the principal amount of the applicable Term Loan prepaid between the first and second anniversary of the Effective Date, and (iii) 1.00% of the principal amount of the applicable Term Loan prepaid thereafter, and prior to the third anniversary of the Effective Date (each, a "Prepayment Fee").

The Company may terminate the revolving credit line under the Senior Loan Agreement at any time upon 3 business days' advance written notice to the Senior Lender. If the Company terminates the revolving credit line prior to the Maturity Date, it must pay to the Senior Lender an early termination fee of \$50,000 (the "Termination Fee").

The Company is subject to a number of affirmative and restrictive covenants pursuant to the Loan Agreements, including covenants regarding achieving minimum product revenues, delivery of financial statements, maintenance of inventory, payment of taxes, maintenance of insurance, protection of intellectual property rights, dispositions of property, business combinations or acquisitions, incurrence of additional indebtedness or liens, investments and transactions with affiliates, among other customary covenants.

Upon the occurrence of certain events, including but not limited to the Company's failure to satisfy its payment obligations under the Loan Agreements, the breach of certain of its other covenants under the Loan Agreements, or the occurrence of a material adverse change, cross defaults to other indebtedness or material agreements, judgment defaults and defaults related to failure to maintain governmental approvals failure of which to maintain could result in a material adverse effect, the Agent and the Lenders will have the right, among other remedies, to declare all principal and interest immediately due and payable, to exercise secured party remedies, to receive the Final Payment and Termination Fee and, if the payment of principal and interest is due prior to the Maturity Date, to receive the applicable Prepayment Fee.

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this Annual Report on Form 10-K to ensure that the information required to be disclosed by us in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and that information required to be disclosed in the reports we file or submit under the Exchange Act is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, to allow timely decisions regarding required disclosures. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost benefit relationship of possible controls and procedures. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures were not effective at the reasonable assurance level as of December 31, 2019 due to the material weakness described below.

As further discussed below under “*Management’s Report on Internal Control Over Financial Reporting*,” management has identified a material weakness in our information technology (“IT”) general controls (collectively, “ITGCs”) and related IT-dependent process level controls, which are part of our internal control over financial reporting. We have developed a remediation plan for this material weakness, which is described below under “*Remediation of Material Weakness*.”

Notwithstanding the identified material weakness and management’s assessment that our internal control over financial reporting was not effective as of December 31, 2019, management believes that the consolidated financial statements included in this Annual Report on Form 10-K fairly present, in all material respects, our financial condition, results of operations and cash flows as of and for the periods presented in accordance with generally accepted accounting principles.

Management’s Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act.

Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of annual or interim consolidated financial statements will not be prevented or detected on a timely basis.

Management utilized the criteria established in the Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) to assess the effectiveness of our internal control over financial reporting as of December 31, 2019. Based on this evaluation, management identified a deficiency within our ITGCs related to ineffective segregation of duties within one of our IT systems, which is part of our internal control over financial reporting. Process-level controls that were dependent upon

information derived from this IT system were also determined to be ineffective. These deficiencies were the result of an inadequate IT risk assessment process which did not identify the risks associated with ineffective segregation of duties within the IT system.

The control deficiencies described above resulted in no misstatements in our consolidated financial statements; however, these control deficiencies create a reasonable possibility that a material misstatement to our consolidated financial statements or disclosures would not be prevented or detected on a timely basis. As a result, management concluded that the deficiencies represent a material weakness in our internal control over financial reporting and our internal control over financial reporting was not effective as of December 31, 2019.

This Annual Report does not include an attestation report of our registered public accounting firm regarding internal control over financial reporting as required by Section 404(c) of the Sarbanes Oxley Act of 2002. Because we qualify as an emerging growth company under the JOBS Act, management's report was not subject to attestation by our independent registered public accounting firm.

Remediation of Material Weakness

Our Board of Directors and management take internal control over financial reporting and the integrity of our financial statements seriously. We intend to remediate the deficiency related to ineffective segregation of duties within this IT system in 2020 by transferring key administrative access to a third-party IT vendor. Management believes that this effort will remediate the material weakness. However, the material weakness in our internal control over financial reporting will not be considered remediated until other ITGCs and process-level controls that were dependent upon information derived from the general ledger application operate for a sufficient period of time and can be tested and concluded by management to be designed and operating effectively. We cannot provide any assurance that these remediation efforts will be successful or that our internal control over financial reporting will be effective as a result of these efforts. In addition, as we continue to evaluate and work to improve our internal control over financial reporting related to the identified material weakness, management may determine to take additional measures to address control deficiencies or determine to modify the remediation plan described above.

Changes in Internal Control Over Financial Reporting

Except for the changes noted above regarding the material weakness, there have been no other changes in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2019 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The following table sets forth information concerning our directors and executive officers, including their ages as of January 1, 2020. There are no family relationships among any of our directors or executive officers.

We seek to assemble a Board of Directors that, as a whole, possesses the appropriate balance of professional and industry knowledge, financial expertise and high-level management experience and capability in various areas necessary to oversee and direct our business. To that end, our Board of Directors has identified and evaluated nominees in the broader context of the overall composition of our Board of Directors, with the goal of recruiting members who complement and strengthen the skills of other members and who also exhibit integrity, experience, judgment, commitment, skills, diversity, expertise and other qualities that the Board of Directors views as critical to effective functioning of the Board of Directors. The brief biographies below include information, as of the date of this Annual Report, regarding the specific and particular experience, qualifications, attributes or skills of each director that led the Board of Directors to believe that the director should serve on the Board of Directors.

Name	Age	Position
<i>Executive officers:</i>		
Ted White	55	President, Chief Executive Officer and Director
Joe Bonaccorso	56	Chief Commercial Officer
Patrick Burnett, M.D., Ph.D.	48	Chief Medical Officer
A. Brian Davis	52	Chief Financial Officer
Christopher G. Hayes	56	General Counsel
<i>Non-employee directors:</i>		
Paul B. Manning	64	Chairman of the Board of Directors
Craig Ballaron	59	Director
Gary Goldenberg, M.D.	43	Director
Mark Prygocki	53	Director
Sean Stalfort	50	Director

Executive Officers

Ted White

Ted White has served as our President and Chief Executive Officer since December 2017 and as a member of our Board of Directors since May 2018. Previously, from 2011 to September 2017, Mr. White was the President and General Manager of Aqua Pharmaceuticals, an Almirall company. Prior to Aqua Pharmaceuticals, Mr. White was at Novartis from 1989 to 2010, where he served in a number of roles, most recently as a Managing Director. Mr. White holds a M.B.A. from St. Joseph's University and a B.A. in General Arts from Villanova University. Our Board of Directors believes that Mr. White is qualified to serve as a director based on his role as our President and Chief Executive Officer and his extensive management experience in the pharmaceutical industry.

Joe Bonaccorso

Joe Bonaccorso has served as our Chief Commercial Officer since February 2018. From 2012 to February 2018, Mr. Bonaccorso started and ran the U.S. Pharma Division for Pierre Fabre, under the name of Pierre Fabre Pharmaceuticals Inc. Pierre Fabre Pharmaceuticals Inc. was dedicated to both Pediatric Dermatology and Dermatology. Prior to joining Pierre Fabre, Mr. Bonaccorso spent 24 years at Novartis Pharmaceuticals, working in a variety of senior leadership roles in sales, marketing, national sales and training. Mr. Bonaccorso holds an M.A./M.B.A. from Kean University and a B.S. in Biology from Fairleigh Dickinson University.

Patrick Burnett

Patrick Burnett has served as our Chief Medical Officer since April 2018. Previously, Dr. Burnett was at Sun Pharmaceuticals where he was Associate Vice President of Clinical Development from September 2015 to March 2018, with oversight of the dermatology and rheumatology pipeline. Prior to Sun Pharmaceuticals, Dr. Burnett was at Novartis from 2010 to August 2015, most recently as Global Program Medical Director. He is a board certified dermatologist and was a member of the medical faculty at Vanderbilt University Medical Center as an Assistant Professor of Dermatology from 2004 to 2010. Dr. Burnett holds an M.D. and Ph.D. in neuroscience from Johns Hopkins School of Medicine and a B.S. in Biology and Biochemistry from the University of Iowa.

A. Brian Davis

A. Brian Davis has served as our Chief Financial Officer since October 2019. Prior to joining our company, Mr. Davis, was the Chief Financial Officer of Strongbridge Biopharma plc, a public commercial-stage biopharmaceutical company, from March 2015 to September 2019. Prior to joining Strongbridge, Mr. Davis served as Senior Vice President and Chief Financial Officer at Tengion, Inc., a publicly traded regenerative medicine company, from 2010 to 2014. In 2014, Tengion, Inc. filed a petition for relief under Chapter 7 of Title 11 of the United States Bankruptcy Code. From 2009 to 2010, Mr. Davis served in a consulting capacity as Chief Financial Officer of Neose Technologies, Inc., a biopharmaceutical company. Mr. Davis worked at Neose Technologies, Inc. from 1994 to 2009, where he held several positions of increasing responsibility, including Senior Vice President and Chief Financial Officer. Mr. Davis is licensed as a certified public accountant and received a B.S. in accounting from Trenton State College and an M.B.A. from The Wharton School at the University of Pennsylvania.

Christopher G. Hayes

Christopher G. Hayes has served as our General Counsel since September 2018. Prior to joining our company, Mr. Hayes was a practicing attorney and was the owner of the Law Office of Christopher G. Hayes from 2001 to September 2018. Mr. Hayes received a B.A. in economics from Villanova University and a J.D. from The Catholic University of America, Columbus School of Law.

Non-Employee Directors

Paul B. Manning

Paul B. Manning has served as the chairman of our Board of Directors since December 2017 and as a member of our Board of Directors since December 2015. Mr. Manning is the Chairman and Chief Executive Officer of PBM Capital Group, LLC, a private equity investment firm in the business of investing in healthcare and life-science related companies, which he founded in 2010. Prior to that, Mr. Manning founded PBM Products in 1997, a producer of infant formula and baby food, which was sold to Perrigo Corporation in 2010. Mr. Manning is a director of various private companies. Within the past five years, Mr. Manning previously served on the Board of Directors of Dova Pharmaceuticals, Inc., Perrigo Corporation, Concordia Healthcare Corp. and AveXis, Inc. Mr. Manning received a B.S. in microbiology from the University of Massachusetts. Our Board of Directors believes that Mr. Manning should serve as a director based upon his over 30 years of managerial and operational experience in the healthcare industry and as an investor in healthcare related companies.

Craig Ballaron

Craig Ballaron has served as a member of our Board of Directors since June 2019. Mr. Ballaron has served as an independent consultant in the pharmaceuticals, cosmeceuticals, physician dispense products and electronics fields

since 2016. Mr. Ballaron was the co-founder of Aqua Pharmaceuticals Holdings, Inc. and served as the Chief Executive Officer, President and member of the Board of Directors from 2004 to December 2015. Prior to founding Aqua Pharmaceuticals, Mr. Ballaron held various roles with increasing responsibilities at Bioglan Pharmaceuticals from 1999 to 2004. Mr. Ballaron received his B.S. in Business Management from York College. Our Board of Directors believes that Mr. Ballaron should serve as a director based upon his years of experience as a Chief Executive Officer in the pharmaceutical industry.

Gary Goldenberg

Gary Goldenberg has served as a member of our Board of Directors since May 2018. Dr. Goldenberg is a medical and cosmetic dermatologist, with his medical practice at Goldenberg Dermatology PC, which he co-founded in April 2017. Dr. Goldenberg has also served as an assistant clinical professor of dermatology at The Icahn School of Medicine at Mount Sinai Hospital in New York City since 2009. Prior to that, he was an assistant professor of dermatology at the University of Maryland School of Medicine from 2007 to 2009. Dr. Goldenberg holds a M.D. from the Temple University School of Medicine and a B.A. in biology from La Salle University. He completed his Residency in Dermatology at Wake Forest University School of Medicine and his Dermatopathology Fellowship at University of Colorado Health Sciences Center. Our Board of Directors believes that Dr. Goldenberg should serve as a director based upon his extensive scientific background and experience as a practicing dermatologist.

Mark Prygocki

Mark Prygocki has served as a member of our Board of Directors since May 2018. From January 2017 until December 2019, he served as President, Chief Executive Officer and a member of the Board of Directors of Illustris Pharmaceuticals, Inc., a privately held bio-development company. Prior to joining Illustris, Mr. Prygocki worked at Medicis Pharmaceutical Corporation, a biopharmaceutical company, for more than 20 years and served as President from 2010 to 2012. Prior to that, Mr. Prygocki held several senior-level positions at Medicis, including Chief Operating Officer, Executive Vice President, and Chief Financial Officer and Treasurer. Since 2012, Mr. Prygocki has served as a consultant to the pharmaceutical and retail industries through his consulting company. Mr. Prygocki's previous experience includes work at Citigroup, an investment banking firm, in the regulatory reporting division and several years in the audit department of Ernst & Young, LLP. Mr. Prygocki currently serves on the Board of Directors of Clarus Therapeutics, Inc. and is Chairman of its audit committee. Mr. Prygocki also served on the Board of Directors of Revance Therapeutics, Inc. within the last five years. He is certified by the American Institute of Certified Public Accountants. Mr. Prygocki serves on the board of Whispering Hope Ranch Foundation, a non-profit organization that assists children with special needs. Mr. Prygocki holds a B.S. in accounting from Pace University. Our Board of Directors believes that Mr. Prygocki should serve as a director based upon his operating experience and financial expertise in the biopharmaceutical industry, combined with his prior financial and board positions.

Sean Stalfort

Sean Stalfort has served as a member of our Board of Directors since December 2015. Mr. Stalfort is the President of PBM Capital Group, LLC, a private equity investment firm in the business of investing in healthcare and life-science related companies. Mr. Stalfort has been with PBM Capital Group, LLC since May 2010. Prior to joining PBM Capital Group, LLC, Mr. Stalfort was the Executive Vice President for New Business Development/M&A for PBM Products. Mr. Stalfort is also a founding Partner of Octagon Partners and Octagon Finance, historic tax credit real estate companies. Mr. Stalfort is a director of various private healthcare companies. Within the past five years, Mr. Stalfort previously served on the Board of Directors of Dova Pharmaceuticals, Inc. Mr. Stalfort received a B.A. in Business Economics and Political Science from Brown University. Our Board of Directors believes that Mr. Stalfort should serve as a director based upon his years as an investor in healthcare related companies.

Delinquent Section 16(a)

Section 16(a) of the Exchange Act requires our directors and officers and holders of more than 10% of our common stock to file with the SEC initial reports of ownership of our common stock and other equity securities on a Form 3 and reports of changes in such ownership on a Form 4 or Form 5. Directors and officers and holders of 10% of our common stock are required by SEC regulations to furnish us with copies of all Section 16(a) forms they file. To our

knowledge, based solely on a review of our records and representations made by our directors and officers regarding their filing obligations, [all Section 16(a) filing requirements were satisfied with respect to fiscal 2019, except for one Form 4 for Glenn Oclassen, which was inadvertently filed late on January 31, 2019.

Code of Business Conduct and Ethics for Employees, Executive Officers and Directors

We have adopted a Code of Business Conduct and Ethics, or the Code of Conduct, applicable to all of our employees, executive officers and directors. The Code of Conduct is available on our website at www.verrica.com. The Nominating and Corporate Governance Committee is responsible for overseeing the Code of Conduct and must approve any waivers of the Code of Conduct for executive officers and directors. If we make any substantive amendments to the Code of Conduct or grants 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.

Audit Committee and Audit Committee Financial Expert

Our audit committee consists of Messrs. Prygocki and Ballaron and Dr. Goldenberg, with Mr. Prygocki serving as chair of the audit committee. Our Board of Directors has determined that each of these individuals meets the independence requirements of the Sarbanes-Oxley Act of 2002, as amended, or the Sarbanes-Oxley Act, Rule 10A-3 under the Exchange Act and the applicable listing standards of Nasdaq. Each member of our audit committee can read and understand fundamental financial statements in accordance with Nasdaq audit committee requirements. In arriving at this determination, the Board of Directors has examined each audit committee member's scope of experience and the nature of their prior and/or current employment. Our Board of Directors has determined that Mr. Prygocki qualifies as an audit committee financial expert within the meaning of SEC regulations and meets the financial sophistication requirements of the Nasdaq Listing Rules. In making this determination, our Board of Directors has considered Mr. Prygocki's level of knowledge and experience based on a number of factors, including his formal education and experience as a chief financial officer for public reporting companies.

Stockholder Recommendation of Director Nominees

Our Nominating and Corporate Governance Committee will consider director candidates recommended by stockholders. The Nominating and Corporate Governance Committee does not intend to alter the manner in which it evaluates candidates, including the minimum criteria set forth above, based on whether or not the candidate was recommended by a stockholder. Stockholders who wish to recommend individuals for consideration by the Nominating and Corporate Governance Committee to become nominees for election to the Board of Directors may do so by delivering a written recommendation to the Nominating and Corporate Governance Committee at the following address: Secretary, Verrica Pharmaceuticals Inc., 10 North High Street, Suite 200, West Chester, Pennsylvania 19380, at least 90 days, but not more than 120 days, prior to the anniversary date of the mailing of our proxy statement for the preceding year's annual meeting of stockholders. Submissions must include: (1) the name and address of the stockholder on whose behalf the submission is made; (2) the number of our shares that are owned beneficially by such stockholder as of the date of the submission; (3) the full name, age, business address and residence address of the proposed candidate; (4) a description of the proposed candidate's principal occupation or employment; (5) the class and number of shares of each class of capital stock of the corporation which are owned of record and beneficially by such proposed candidate; and (6) such additional information as is required by our bylaws. Each submission must be accompanied by the written consent of the proposed candidate to be named as a nominee and to serve as a director if elected.

Item 11. Executive Compensation

Executive Compensation

Our named executive officers for the year ended December 31, 2019, which consist of our President and Chief Executive Officer and the next two most highly compensated executive officers in 2019, are:

- Ted White
- Joe Bonaccorso

Summary Compensation Table

The following table sets forth information regarding compensation earned with respect to the years ended December 31, 2018 and 2019 by our named executive officers. Mr. Bonaccorso commenced service with us in 2018 and Mr. Davis commenced service with us in 2019.

Name and Principal Position	Year	Salary (\$)	Stock Awards (\$)(1)	Option Awards (\$)(2)	Non-Equity Incentive Plan Compensation (\$)(3)	All Other Compensation (\$)(4)
Ted White <i>President, Chief Executive Officer and Director</i>	2019	433,333	—	775,000	198,000	3
	2018	400,000	—	4,367,619	225,000	
Joe Bonaccorso(5) <i>Chief Commercial Officer</i>	2019	370,417	—	474,765	149,800	
	2018	315,673	—	617,705	158,300	
A. Brian Davis(6) <i>Chief Financial Officer</i>	2019	76,923	—	1,227,500	30,822	

- (1) In accordance with SEC rules, these amounts reflect the grant date fair values of the restricted stock units, or RSUs, granted to each of Messrs. White, Bonaccorso and Davis in 2019, calculated in accordance with ASC Topic 718 for stock-based compensation transactions, based on the probable outcome of the vesting conditions of these RSUs as of the grant date. Each RSU represented the contingent right to receive one share of our common stock upon the achievement of certain performance targets, subject to the recipient's continuous service through the vesting events. As of the grant date, the performance vesting condition was considered not probable of occurring and, as a result, the grant date fair value of the RSUs, for purposes of this table, is \$0. Assuming that the performance vesting condition of these RSUs was met as of the grant date, the value of these RSUs would have been \$1,178,250 for each of Messrs. White and Bonaccorso and \$392,750 for Mr. Davis. The assumptions we used in valuing RSUs are described in Note 2 to our audited financial statements included in this Annual Report on Form 10-K.
- (2) The amounts reflect the full grant date fair value for awards granted during the indicated year. The grant date fair value was computed in accordance with ASC Topic 718, Compensation—Stock Compensation. Consistent with 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 9 to our audited financial statements included in this Annual Report on Form 10-K.
- (3) The amounts reflect the portion of each named executive officer's target bonus paid based on the achievement of our corporate goals, which are discussed further below under "—Narrative to Summary Compensation Table—Annual Bonus." For Mr. Bonaccorso, his annual bonus for 2018 was prorated based on his start date during 2018. For Mr. Davis, his annual bonus for 2019 was prorated based on his start date during 2019.
- (4) Includes our 401(k) plan matching contributions and life insurance premiums paid by us.

(5) Mr. Bonaccorso has served as our Chief Commercial Officer since February 2018.

(6) Mr. Davis has served as our Chief Financial Officer since October 2019.

Outstanding Equity Awards as of December 31, 2019

The following table sets forth certain information about equity awards granted to our named executive officers that remain outstanding as of December 31, 2019:

Name	Grant Date	Option Awards ⁽¹⁾			Stock Awards		
		Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#) ⁽²⁾	Market Value of Shares or Stock That Have Not Vested
Ted White	2/12/2018	362,157	362,158 ⁽⁴⁾	6.52	2/11/2028	75,000	1,191,750
	2/28/2019	—	100,000 ⁽⁵⁾	11.32	2/27/2029		
Joe Bonaccorso	2/12/2018	46,795	55,305 ⁽⁶⁾	6.52	2/11/2028	75,000	1,191,750
	2/28/2019	—	61,260 ⁽⁵⁾	11.32	2/27/2029		
A. Brian Davis	10/18/2019	—	125,000 ⁽⁷⁾	14.65	10/18/2029	25,000	392,750

- (1) All of the option awards granted prior to our initial public offering in June 2018 listed in the table above were granted under our 2013 Equity Incentive Plan and all of the option awards granted following the completion of our initial public offering were granted under our 2018 Equity Incentive Plan.
- (2) These shares represent restricted stock units granted in November 2019, which are subject to performance vesting. The restricted stock units vest 50% upon receipt of regulatory approval of our new drug application for VP-102 for the treatment of molluscum, or the Approval Date, and 50% shall vest on the one year anniversary of the Approval Date subject to the holders' continuous service through each applicable date.
- (3) The market value amount is calculated based on the closing price of our common stock of \$15.89 at December 31, 2019.
- (4) The shares of common stock underlying this option vest and become exercisable over a four-year period as to 25% of the common stock underlying the option on December 11, 2018 and as to 75% of the shares of common stock underlying the option in 36 equal monthly installments thereafter, subject to the recipient's continued service through each vesting date, and subject to full acceleration in the event of a sale event, as defined in the executive's employment agreement, during such continued service.
- (5) The shares of common stock underlying this option vest and become exercisable over a four-year period as to 25% of the common stock underlying the option on February 28, 2020 and as to 75% of the shares of common stock underlying the option in 36 equal monthly installments thereafter, subject to the recipient's continued service through each vesting date, and subject to full acceleration in the event of a sale event, as defined in the executive's employment agreement, during such continued service.
- (6) The shares of common stock underlying this option vest and become exercisable over a four-year period as to 25% of the common stock underlying the option on February 7, 2019 and as to 75% of the shares of common stock underlying the option in 36 equal monthly installments thereafter, subject to the recipient's continued service through each vesting date, and subject to full acceleration in the event of a sale event, as defined in the executive's employment agreement, during such continued service.
- (7) The shares of common stock underlying this option vest and become exercisable over a four-year period as to 25% of the common stock underlying the option on October 18, 2020 and as to 75% of the shares of common stock underlying the option in 36 equal monthly installments thereafter, subject to the recipient's continued service through each vesting date, and subject to full acceleration in the event of a sale event, as defined in the executive's employment agreement, during such continued service.

Narrative to Summary Compensation Table

We review compensation 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 of Directors 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, the Compensation Committee then recommends the compensation for each executive officer. Our Compensation Committee, without members of management present, discusses and ultimately approves the compensation of our executive officers.

Annual Base Salary

We have entered into employment agreements with each of our named executive officers that establish annual base salaries, which are generally determined, approved and reviewed periodically by our Compensation Committee in order to compensate our named executive officers for the satisfactory performance of duties to us. The following table presents the annual base salaries for each of our named executive officers for the years indicated. The 2020 base salaries became effective on January 1, 2020 for all of the named executive officers.

Name	2020 Base Salary (\$)	2019 Base Salary (\$)
Ted White	485,000	440,000
Joe Bonaccorso	395,000	374,500
A. Brian Davis	388,125	375,000

Annual Bonus

We seek to motivate and reward our executives for achievements relative to our corporate goals and expectations for each fiscal year. Each named executive officer has a target bonus opportunity, defined as a percentage of his or her annual salary. For 2018, the target bonus for Mr. White was 45% of his base salary and the target bonus for Mr. Bonaccorso was 40% of his base salary. For 2019, the target bonus for Mr. White was 45% of his base salary and the target bonus for each of Mr. Davis and Mr. Bonaccorso was 40% of their respective base salaries. For 2020, the target bonus for Mr. White is 50% of his base salary and the target bonus for each of Mr. Bonaccorso and Mr. Davis is 40% of base salary.

To reinforce the importance of integrated and collaborative leadership, our executives' bonuses have historically been solely based on company performance, and we did not include an individual performance component. For 2018, the corporate performance goals consisted of clinical development, regulatory, commercial readiness, cultural and financial objectives. For 2018, our Compensation Committee determined that the corporate performance goals had been achieved at a 125% level in the aggregate. For 2019, the corporate performance goals consisted of clinical development, regulatory, commercial readiness, cultural and financial objectives. For 2019, our Compensation Committee determined that the corporate performance goals had been achieved at a 100% level in the aggregate. Such amounts are reflected in the "Non-Equity Incentive Plan Compensation" column of the Summary Compensation Table. For Mr. Bonaccorso and Mr. Davis, each of their annual bonus amounts for 2018 and 2019, respectively, shown in the Summary Compensation Table reflects a prorated bonus based on their respective start dates.

Equity-Based Awards

Our equity-based incentive awards granted to our named executive officers are designed to align the interests of our named executive officers with those of our stockholders. Vesting of equity awards is generally tied to each officer's continuous service with us and serves as an additional retention measure. Our executives generally are awarded an initial new hire grant upon commencement of employment. Additional grants may occur periodically in order to

specifically incentivize executives with respect to achieving certain corporate goals or to reward executives for exceptional performance.

Prior to our initial public offering, we granted all equity awards pursuant to our 2013 Equity Incentive Plan, and following the closing of our initial public offering, we grant all equity awards pursuant to our 2018 Equity Incentive Plan.

In February 2020, in connection with its annual compensation review, our Board of Directors granted options to purchase shares of our common stock to our named executive officers. The shares of common stock subject to the option grants vest as to one-fourth of the shares one year after the date of grant, with the balance of the shares vesting in 36 successive equal monthly installments thereafter, subject to the officer's service with us as of each such date. Each option had an exercise price of \$11.81 per share, the closing price of our common stock on the grant date. The following equity grants were made on February 27, 2020:

	Number of Shares Underlying Option Grant
Ted White	125,000
Joe Bonaccorso	55,000
A. Brian Davis	55,000

For additional information about equity grants made historically to our named executive officers, please see “—Outstanding Equity Awards as of December 31, 2019” above.

Employment Arrangements and Potential Payments upon Termination of Employment or Change in Control

We have entered into employment agreements with each of our current executive officers.

Mr. White

We entered into an employment agreement with Mr. White, our Chief Executive Officer and President, on December 11, 2017, which was amended and restated on January 10, 2020. Under the terms of the amended and restated agreement, Mr. White is entitled to receive an annual base salary of \$440,000 and an annual bonus of up to 45% of his annual base salary based upon our Board of Directors' assessment of Mr. White's performance and our attainment of targeted goals as set by the Board of Directors in its sole discretion. In accordance with the original employment agreement, Mr. White was also awarded an option to purchase 724,315 shares of our common stock at an exercise price of \$6.52 per share in February 2018 under our 2013 Equity Incentive Plan. 25% of the shares subject to the option vested on December 11, 2018 (the first anniversary of Mr. White's commencement of employment) and the remaining shares vest in 36 equal monthly installments thereafter, subject to Mr. White's continued service and subject to full acceleration in the event of a sale event, as defined in Mr. White's agreement, during such continued service. Pursuant to his amended and restated employment agreement, Mr. White also entered into a confidentiality, inventions assignment, non-competition and non-solicitation agreement with us.

Pursuant to the terms of his amended and restated employment agreement, Mr. White's employment is at will and may be terminated at any time by us or Mr. White. If Mr. White's employment is terminated by us without cause or by Mr. White for good reason, then Mr. White would be eligible to receive severance benefits. The length of severance benefits that Mr. White would receive depends on (i) when his employment is terminated and (ii) whether or not he is terminated in connection with a change in control.

If Mr. White's employment is terminated by us without cause or if Mr. White resigns with good reason, then Mr. White would be entitled to 12 months of severance benefits. During the applicable severance period, Mr. White would receive the following severance benefits, less applicable tax withholding:

- payment of his then-current base salary in accordance with normal payroll procedures for the applicable severance period; and
- payment or reimbursement of continued health coverage for Mr. White and his dependents under COBRA for the applicable severance period.

If Mr. White's employment is terminated by us without cause or if Mr. White resigns with good reason, in either case within 12 months following or 1 month prior to the effective date of a change in control, then Mr. White would be entitled to the following severance benefits, less applicable tax withholding:

- payment of his then-current base salary in accordance with normal payroll procedures for 12 months;
- payment of a cash severance benefit equal to Mr. White's annual bonus at the target percentage for the year in which the termination occurs;
- payment or reimbursement of continued health coverage for Mr. White and his dependents under COBRA for 12 months; and
- all equity awards owned by Mr. White will automatically vest.

Mr. Bonaccorso

We entered into an employment agreement with Mr. Bonaccorso, our Chief Commercial Officer, in January 2018, which was amended and restated on January 10, 2020. Under the terms of the amended and restated agreement, Mr. Bonaccorso is entitled to receive an annual base salary of \$374,500 and an annual bonus of up to 40% of his annual base salary based upon our Board of Directors' assessment of Mr. Bonaccorso's performance and our attainment of targeted goals as set by the Board of Directors in their sole discretion. In connection with his original employment agreement, Mr. Bonaccorso was also awarded an option to purchase 102,100 shares of common stock at an exercise price of \$6.52 per share in February 2018 under our 2013 Equity Incentive Plan. 25% of the shares subject to the option vested on February 7, 2019 (the first anniversary of Mr. Bonaccorso's commencement of employment) and the remaining shares vest in 36 equal monthly installments thereafter, subject to Mr. Bonaccorso's continued service and subject to full acceleration in the event of a sale event, as defined in Mr. Bonaccorso's agreement, during such continued service. Pursuant to his amended and restated employment agreement, Mr. Bonaccorso also entered into a confidentiality, inventions assignment, non-competition and non-solicitation agreement with us.

Pursuant to the terms of his amended and restated employment agreement, Mr. Bonaccorso's employment is at will and may be terminated at any time by us or Mr. Bonaccorso. If Mr. Bonaccorso's employment is terminated by us without cause or by Mr. Bonaccorso for good reason, then Mr. Bonaccorso would be eligible to receive severance benefits. The length of severance benefits that Mr. Bonaccorso would receive depends on (i) when his employment is terminated and (ii) whether or not he is terminated in connection with a change in control.

If Mr. Bonaccorso's employment is terminated by us without cause or if Mr. Bonaccorso resigns with good reason on or before February 7, 2020, then he would be entitled to six months of severance benefits and if it occurs after February 7, 2020, then Mr. Bonaccorso would be entitled to 12 months of severance benefits. During the applicable severance period, Mr. Bonaccorso would receive the following severance benefits, less applicable tax withholding:

- payment of his then-current base salary in accordance with normal payroll procedures for the applicable severance period; and
- payment or reimbursement of continued health coverage for Mr. Bonaccorso and his dependents under COBRA for the applicable severance period.

If Mr. Bonaccorso's employment is terminated by us without cause or if Mr. Bonaccorso resigns with good reason, in either case within 12 months following or 1 month prior to the effective date of a change in control, then Mr. Bonaccorso would be entitled to the following severance benefits, less applicable tax withholding:

- payment of his then-current base salary in accordance with normal payroll procedures for 12 months;
- payment of a cash severance benefit equal to Mr. Bonaccorso's annual bonus at the target percentage for the year in which the termination occurs;
- payment or reimbursement of continued health coverage for Mr. Bonaccorso and his dependents under COBRA for 12 months; and

- all equity awards owned by Mr. Bonaccorso will automatically vest.

A. Brian Davis

We entered into an employment agreement with Mr. Davis, our Chief Financial Officer, in October 2019. Under the terms of the amended and restated agreement, Mr. Davis is entitled to receive an annual base salary of \$375,000 and an annual bonus of up to 40% of his annual base salary based upon our Board of Directors' assessment of Mr. Davis' performance and our attainment of targeted goals as set by the Board of Directors in their sole discretion. In connection with his employment agreement, Mr. Davis was also awarded an option to purchase 125,000 shares of our common stock at an exercise price of \$14.65 per share in October 2019 under our 2018 plan. 25% of the shares subject to the option vest on October 18, 2020 (the first anniversary of Mr. Davis' commencement of employment) and the remaining shares vest in 36 equal monthly installments thereafter, subject to Mr. Davis' continued service. The option is subject to full acceleration in the event of a change in control, as defined in Mr. Davis' agreement, during such continued service. Pursuant to his employment agreement, Mr. Davis also entered into a confidentiality, inventions assignment, non-competition and non-solicitation agreement with us.

Pursuant to the terms of his employment agreement, Mr. Davis' employment is at will and may be terminated at any time by us or Mr. Davis. If Mr. Davis' employment is terminated by us without cause or by Mr. Davis for good reason, then Mr. Davis would be eligible to receive severance benefits. The length of severance benefits that Mr. Davis would receive depends on (i) when his employment is terminated and (ii) whether or not he is terminated in connection with a change in control.

If Mr. Davis' employment is terminated by us without cause or if Mr. Davis resigns with good reason, an Involuntary Termination, on or before October 18, 2020, then he would be entitled to zero months of severance benefits. If an Involuntary Termination occurs after October 18, 2020 and on or before October 18, 2021, then Mr. Davis would be entitled to 6 months of severance benefits. If an Involuntary Termination occurs after October 18, 2021, then Mr. Davis would be entitled to 12 months of severance benefits. During the applicable severance period, Mr. Davis would receive the following severance benefits, less applicable tax withholding:

- payment of his then-current base salary in accordance with normal payroll procedures for the applicable severance period; and
- payment or reimbursement of continued health coverage for Mr. Davis and his dependents under COBRA for the applicable severance period.

If Mr. Davis' employment is terminated by us without cause or if Mr. Davis resigns with good reason, in either case within 12 months following or 1 month prior to the effective date of a change in control, then Mr. Davis would be entitled to the following severance benefits, less applicable tax withholding:

- payment of his then-current base salary in accordance with normal payroll procedures for 12 months;
- payment of a cash severance benefit equal to Mr. Davis' annual bonus at the target percentage for the year in which the termination occurs;
- payment or reimbursement of continued health coverage for Mr. Davis and his dependents under COBRA for 12 months; and
- all equity awards owned by Mr. Davis will automatically vest.

Retirement Benefits and Other Compensation

Our named executive officers did not participate in, or otherwise receive any benefits under, any pension, retirement or deferred compensation plan sponsored by us during 2019 other than our 401(k) plan described below. Our named executive officers were eligible to participate in our employee benefits, including health insurance and group life insurance benefits, on the same basis as our other employees. We maintain a 401(k) plan intended to qualify as a tax-qualified plan under Section 401 of the Internal Revenue Code of 1986, as amended, or the Code, which our named executive officers are eligible to participate in on the same basis as our other employees. Until December 31, 2019, we provided an automatic matching contribution of \$0.50 per \$1.00 of employee contribution in the 401(k)

plan up to a maximum of 4% of employee deferral. Effective January 1, 2020, participants may elect to make both pre- and post-tax contributions to their accounts in the 401(k) plan, and we match 100% of those contributions up to 4% of employee deferral. We generally do not provide perquisites or personal benefits, and we did not provide any perquisites or personal benefits to our named executive officers in 2019 other than those provided to all employees.

Equity Incentive Plans

2018 Equity Incentive Plan

In June 2018, our Board of Directors adopted and approved the 2018 Equity Incentive Plan, or the 2018 Plan, which amended and restated our prior 2013 Equity Incentive Plan, or the 2013 Plan and became effective in connection with the IPO pricing on June 14, 2018. Prior to the effectiveness of the 2018 Plan, the 2013 Plan provided for the grant of share-based awards to our employees, directors and consultants. As a result of the effectiveness of the 2018 Plan, no further grants can be made under the 2013 Plan. Our 2018 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 2018 Plan also provides for the grant of performance cash awards to our employees, consultants and directors.

Authorized Shares

We initially reserved 3,738,199 shares of common stock for issuance under the 2018 Plan, which is the sum of (1) 2,198,198 new shares, plus (2) the number of shares reserved for issuance under the 2013 Plan at the time the 2018 Plan became effective, plus (3) any shares subject to outstanding stock options or other stock awards that would have otherwise returned to the 2013 Plan (such as upon the expiration or termination of a stock award prior to exercise). The number of shares of common stock reserved for issuance under the 2018 Plan automatically increases on January 1 each year, for a period of ten years, through January 1, 2028, by 4% 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 the Board of Directors. As of December 31, 2019, 2,199,325 shares were available for grant under the 2018 Plan.

Shares issued under our 2018 Plan may be authorized but unissued or reacquired shares of our common stock. Shares subject to stock awards granted under our 2018 Plan that expire or terminate without being exercised in full, or that are paid out in cash rather than in shares, will not reduce the number of shares available for issuance under our 2018 Plan. Additionally, shares issued pursuant to stock awards under our 2018 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 2018 Plan.

Administration

Our Board of Directors, or a duly authorized committee thereof, has the authority to administer our 2018 Plan. Our Board of Directors has delegated its authority to administer our 2018 Plan to our compensation committee under the terms of the compensation committee's charter. Our Board of Directors may also delegate to one or more of our officers the authority to (i) designate employees other than officers to receive specified stock awards and (ii) determine the number of shares of our common stock to be subject to such stock awards. Subject to the terms of our 2018 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 2018 Plan.

The administrator has the power to modify outstanding awards under our 2018 Plan. Subject to the terms of our 2018 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 GAAP with the consent of any adversely affected participant.

Performance Awards

Our 2018 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 2018 Plan provides that in the event of a specified corporate transaction, including without limitation 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 equity award. The administrator may:

- arrange for the assumption, continuation or substitution of a stock award by a successor corporation;
- arrange for the assignment of any reacquisition or repurchase rights held by us to a successor corporation;
- accelerate the vesting 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 equity awards or portions of equity 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 an equity award.

Change of Control

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

Plan Amendment or Termination

Our Board of Directors has the authority to amend, suspend or terminate our 2018 Plan, provided that such action does not materially impair the existing rights of any participant without such participant's written consent. No incentive stock options may be granted after the tenth anniversary of the date our Board of Directors adopted our 2018 Plan.

2013 Equity Incentive Plan

General

Our Board of Directors adopted and our stockholders approved our 2013 Plan, in August 2013. We have subsequently amended our 2013 Plan, with the most recent amendment approved by our Board of Directors on February 20, 2018, the purpose of which was to increase the number of shares available for issuance under our 2013

Plan. Our stockholders approved this recent amendment on February 22, 2018. Our 2013 Plan terminated in connection with our adoption of our 2018 Plan; however, awards outstanding under our 2013 Plan continue in full effect in accordance with their existing terms.

Administration

Our Board of Directors has administered our 2013 Plan since its adoption, however, following this offering, the compensation committee of our Board of Directors will generally administer our 2013 Plan. Our Board of Directors has full authority and discretion to make any determinations and take any actions it deems necessary or advisable for the administration of our 2013 Plan. Our Board of Directors may institute the terms and conditions of any program under which outstanding awards are surrendered or cancelled in exchange for awards of the same type, awards of a different type and/or cash, participants would have the opportunity to transfer any outstanding awards to a financial institution or other person or entity selected by the Board of Directors and/or the exercise price of an outstanding award is reduced or increased.

Types of Awards

Our 2013 Plan provided for the grant of restricted shares, incentive stock options, stock appreciation rights and restricted stock units to employees, members of our Board of Directors and consultants. Incentive stock options could only be granted to employees.

Options

The exercise price of options granted under our 2013 Plan could not be less than 100% of the fair market value of our common stock on the grant date. Options expire at the time determined by the administrator, but in no event more than ten years after they are granted, and generally expire earlier if the optionee's service terminates.

Corporate Transactions

In the event of a merger or certain specified change in control transactions, each outstanding stock award will be treated as the plan administrator determines without a participant's consent, including providing that:

- stock awards will be assumed, or substantially equivalent stock awards will be substituted, by the acquiring or succeeding entity with appropriate adjustments as to the number and kind of shares and prices;
- upon written notice to the participant, that the participant's stock awards will terminate upon or immediately prior to the consummation of the merger or change in control;
- outstanding stock awards will vest and become exercisable or payable, or restrictions applicable to the stock awards will lapse, in whole or in part, prior to or upon consummation of the merger or change in control, and to the extent determined by the plan administrator, the stock awards will terminate upon or immediately prior to the merger or change in control;
- the stock award will terminate in exchange for an amount of cash and/or property, if any, equal to the amount that would have been attained upon the exercise of the stock award or realization of the participant's rights with respect to the stock award as of the date of the occurrence of the transaction (including termination for no payment if no amount would have been attained upon exercise of the stock award or realization of the participant's rights with respect to the stock award), or the replacement of the stock award with other rights or property selected by the plan administrator in its sole discretion; or
- any combination of the foregoing.

Our plan administrator is not obligated to treat all stock awards, all stock awards held by a participant, or all stock awards of the same type, in the same manner.

In addition, if the successor entity does not assume or substitute for the stock awards or portion thereof, the participant will fully vest in and have the right to exercise all of his or her outstanding stock awards and all restrictions on outstanding stock awards will lapse, and, with respect to stock options, the plan administrator will notify the participant that the stock options will be exercisable for a period of time as determined by the plan administrator, and will terminate upon the expiration of that period if not exercised. For this purpose, a stock award will be considered assumed if, following the merger or change in control, the stock award provides the right to purchase or receive, for each share subject to the stock award immediately before the merger or change in control, the consideration (including cash, stock or other securities or property) received in the merger or change in control by holders of our common stock generally. If the consideration to be received by the holders of our common stock is not solely common stock of the successor entity or its parent, however, the plan administrator may, with the consent of the successor entity, provide for the consideration to be received upon the exercise or payout of a stock award to be solely common stock of the successor entity or its parent equal in fair market value to the per share consideration received by holders of our common stock in the merger or change in control.

Under the 2013 Plan, a change in control is generally the occurrence of (1) a change in the ownership of our company that occurs on the date that any one person, or more than one person acting as a group, acquires stock of our company that, together with the stock held by the person or group, constitutes more than 50% of the total voting power of our stock, but excluding any change in the ownership of our stock as a result of a private financing that is approved by our Board of Directors; (2) a change in effective control of our company that occurs on the date that a majority of the members of our Board of Directors is replaced during any 12-month period by directors whose appointment or election is not endorsed by a majority of the members of our Board of Directors prior to the date of the appointment or election, provided that if any individual or group is already in effective control of our company, the acquisition of additional control by the same individual or group will not be considered a change in control; or (3) a change in the ownership of a substantial portion of our assets which occurs on the date that any individual or group acquires (or has acquired during the previous twelve month period ending on the date of the most recent acquisition) assets of our company that have a total gross fair market value equal to or more than 50% of the total gross fair market value of all of our assets immediately before the acquisition or acquisitions.

Changes in Capitalization

In the event of any dividend or other distribution, recapitalization, stock split, reverse stock split, reorganization, merger, consolidation, split-up, spin-off, combination, repurchase or exchange of shares or other securities of our company or other change in our corporate structure affecting shares of common stock, our Board of Directors, in order to prevent diminution or enlargement of the benefits or potential benefits intended to be made available under the 2013 Plan, will adjust the number and class of shares of stock that may be delivered under the 2013 Plan and/or the number, class, and price of shares of stock covered by each outstanding award.

Transferability

A participant generally may not transfer stock awards under our 2013 Plan other than by will, the laws of descent and distribution, or as otherwise provided under our 2013 Plan.

Plan Amendment or Termination

Our Board of Directors has the authority to amend the 2013 Plan, provided that such action does not impair the existing rights of any participant without such participant's written consent. As a result of the effectiveness of the 2018 Plan, our 2013 Plan terminated; however, awards outstanding under our 2013 Plan continue in full effect in accordance with their existing terms.

Non-Employee Director Compensation

The following table sets forth in summary form information concerning the compensation that we paid or awarded during the year ended December 31, 2019 to each of our non-employee directors:

Name	Fees Earned or Paid in Cash (\$)	Option Awards \$(1)(2)	Total (\$)
Paul B. Manning	—	—	—
Craig Ballaron	25,000	110,263	135,262
Gary Goldenberg	55,000	127,648	182,648
Mark Prygocki	60,000	180,854	240,854
Sean Stalfort	—	—	—
Glenn Oclassen ⁽³⁾	55,000	79,112	134,112

07620000(1) The amounts reported do not reflect the amounts actually received by our non-employee directors. Instead, these amounts reflect the aggregate grant date fair value of each stock option granted to our non-employee directors during the fiscal year ended December 31, 2019, as computed in accordance with Financial Accounting Standard Board Accounting Standards Codification Topic 718 for stock-based compensation transactions (ASC 718). Assumptions used in the calculation of these amounts are included in Note [9] to our audited financial statements included in this report. As required by SEC rules, the amounts shown exclude the impact of estimated forfeitures related to service-based vesting conditions. Our non-employee directors who have received options will only realize compensation with regard to these options to the extent the trading price of our common stock is greater than the exercise price of such options.

(2) As of December 31, 2019, the estate of Mr. Oclassen, Mr. Prygocki, Mr. Ballaron and Dr. Goldenberg held options to purchase 10,208, 23,336, 17,502, 23,336 shares of our common stock, respectively. None of our other non-employee directors held options to purchase shares of our common stock as of December 31, 2019. None of our non-employee directors held stock awards as of December 31, 2019.

(3) Mr. Oclassen served on the Board of Directors until his death in November 2019.

Non-Employee Director Compensation Policy

Our Board of Directors adopted a non-employee director compensation policy that became effective in June 2018 in connection with our initial public offering. Pursuant to our policy, each of our directors who is not an employee of our company or affiliated with an entity that beneficially owns 5% or more of our outstanding shares of common stock are eligible to receive compensation for service on our Board of Directors and committees of our Board of Directors. Mr. Ballaron, Mr. Prygocki and Dr. Goldenberg are eligible directors and Mr. Oclassen was also an eligible director during 2019.

Each eligible director receives an annual cash retainer of \$40,000 for serving on our Board of Directors. The chairperson of each of the Audit, Compensation and Nominating and Corporate Governance Committees of our Board of Directors are entitled an additional annual cash retainer of \$10,000. The members of each of the Audit, Compensation and Nominating and Corporate Governance Committees of our Board of Directors, who are not the chairpersons of such committees, are entitled an additional annual cash retainer of \$5,000. All annual cash compensation amounts will be payable in equal quarterly installments in advance within the first 30 days of each quarter in which the service will occur.

In addition, each new eligible director who joins our Board of Directors will be granted a non-statutory stock option to purchase 17,502 shares of common stock under our 2018 Plan, with one-third of the shares vesting on the first anniversary of the date of grant and the remaining shares vesting in 24 equal monthly installments thereafter, subject to continued service as a director through the applicable vesting date.

On the date of each annual meeting of our stockholders, each eligible director who continues to serve as a director of our company following the meeting will be granted a non-statutory stock option to purchase 5,834 shares of our common stock under our 2018 Plan, vesting in 12 equal monthly installments following the grant date and in any event will be fully vested on the date of the next annual meeting of our stockholders, subject to continued service as a director through the applicable vesting date.

Each option awarded to eligible directors under the non-employee director compensation policy is subject to accelerated vesting upon a Change in Control (as defined in the 2018 Plan). The exercise price per share of each stock option granted under the non-employee director compensation policy is equal to the closing price of our common stock on the Nasdaq Global Market on the date of grant. Each stock option has a term of ten years from the date of grant, subject to earlier termination in connection with a termination of the eligible director's continuous service with us (provided that upon a termination of service other than for death, disability or cause, the post-termination exercise period will be 12 months from the date of termination).

Compensation Committee

We have a separately designated standing Compensation Committee. Our Compensation Committee is currently composed of three directors: Mr. Ballaron, Mr. Prygocki and Dr. Goldenberg. Mr. Ballaron, Mr. Prygocki and Dr. Goldenberg are non-employee directors, as defined in Rule 16b-3 promulgated under the Exchange Act and are "outside directors," as defined pursuant to Section 162(m) of the Internal Revenue Code of 1986, as amended (the "Code"). Our Board of Directors has determined that Messrs. Ballaron and Prygocki and Dr. Goldenberg are "independent" as defined under the applicable Nasdaq listing standards, including the standards specific to members of a compensation committee.

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

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The following table sets forth information regarding beneficial ownership of our capital stock as of December 31, 2019 by:

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

The percentage ownership information shown is based upon 25,786,330 shares of common stock outstanding as of December 31, 2019. We have determined beneficial ownership in accordance with the rules of the SEC. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities. In addition, the rules include shares of common stock issuable pursuant to the exercise of stock options that are exercisable on or before February 29, 2020, which is 60 days after December 31, 2019. These shares are deemed to be outstanding and beneficially owned by the person holding those

options for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. This table is based upon information supplied by officers, directors and principal stockholders and Schedules 13D and 13G, if any, filed with the SEC. Unless otherwise indicated in the footnotes to this table and subject to community property laws where applicable, we believe that each of the stockholders named in this table has sole voting and investment power with respect to the shares indicated as beneficially owned.

Except as otherwise noted below, the address for persons listed in the table is c/o Verrica Pharmaceuticals Inc., 10 North High Street, Suite 200, West Chester, Pennsylvania 19380.

Name of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned
5% or greater stockholders:		
Entities affiliated with Paul B. Manning ⁽¹⁾	9,643,247	37.4%
Perceptive Life Sciences Master Fund, Ltd. ⁽²⁾	3,410,412	13.2%
OrbiMed Private Investments VI, LP ⁽³⁾	1,479,733	5.7%
Matt Davidson ⁽⁴⁾	2,473,160	9.6%
Named executive officers and directors:		
Ted White ⁽⁵⁾	424,642	1.6%
Paul B. Manning ⁽¹⁾	9,643,247	37.4%
Sean Stalfort ⁽⁶⁾	430,860	1.7%
Mark Prygocki ⁽⁷⁾	13,611	*
Gary Goldenberg ⁽⁸⁾	13,611	*
Craig Ballaron	—	—
Joe Bonaccorso ⁽⁹⁾	67,365	*
A. Brian Davis	—	—
All current executive officers and directors as a group (10 persons) ⁽¹⁰⁾	10,675,986	41.3%

* Represents beneficial ownership of less than 1%

- (1) This information has been obtained from a Form 4 filed on February 3, 2020 by Paul B. Manning. Consists of: (a) 7,754,783 shares of common stock held directly by Paul B. Manning; (b) 324,611 shares of common stock held by Paul and Diane Manning, JTWROS; (c) 256,634 shares of common stock held by PBM Capital Investments, LLC (“PBMCI”); and (d) 1,307,219 shares of common stock held by BKB Growth Investments, LLC (“BKB”). Mr. Manning is a co-manager of BKB and has sole voting and investment power with respect to the shares held by BKB. Mr. Manning is President and CEO of PBMCI and has sole voting and investment power with respect to the shares held by PBMCI. The business address for BKB, PBMCI and Mr. Manning is 200 Garrett Street, Suite S, Charlottesville, VA 22902.
- (2) This information has been obtained from a Schedule 13G/A filed on February 14, 2020 by entities and individuals associated with Perceptive Advisors LLC (“Perceptive Advisors”). Consists of 3,410,412 shares of common stock held by Perceptive Advisors. The address of Perceptive Advisors is 51 Astor Place, 10th Floor, New York, New York 10016.
- (3) This information has been obtained from a Schedule 13G filed on June 19, 2018 by entities and individuals associated with OrbiMed Private Investments VI, LP. Consists of 1,479,733 shares of common stock issuable upon conversion of preferred stock held by OrbiMed Private Investments VI, LP, or OPI VI. OrbiMed Capital GP VI LLC, or GP VI, is the sole general partner of OPI VI. OrbiMed Advisors LLC, or OrbiMed Advisors, is the managing member of GP VI. By virtue of such relationships, GP VI and OrbiMed Advisors may be deemed to have voting and investment power with respect to the shares held by OPI VI and as a result may be deemed to have beneficial ownership of such shares. Advisors exercises investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho and Jonathan T. Silverstein. The address of these entities is 601 Lexington Avenue, 54th floor, New York, New York 10022.
- (4) This information has been obtained from a Schedule 13G filed on January 30, 2020 and consists of 2,473,160 shares of common stock held by Mr. Davidson.

- (5) Consists of (a) 7,305 shares of common stock held by Mr. White and (b) 417,337 shares of common stock issuable upon the exercise of options.
- (6) Consists of 430,860 shares of common stock held by Mr. Stalfort.
- (7) Consists of 13,611 shares of common stock issuable upon the exercise of options held by Mr. Prygocki.
- (8) Consists of 13,611 shares of common stock issuable upon the exercise of options held by Dr. Goldenberg
- (9) Consists of (a) 1,000 shares of common stock held by Mr. Bonaccorso and (b) 66,365 shares of common stock issuable upon the exercise of options.
- (10) Consist of (a) 10,082,412 shares of common stock and (b) 593,574 shares of common stock issuable upon the exercise of options.

Equity Compensation Plan Information

The following table provides certain information with respect to our equity compensation plans as of December 31, 2019.

Name	Number of securities to be issued upon exercise of outstanding options, warrants and rights ⁽¹⁾ (a)	Weighted-average exercise price of outstanding options, warrants and rights ⁽¹⁾ (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) ⁽²⁾ (c)
Equity compensation plans approved by security holders	2,214,545	\$7.90	2,199,325
Equity compensation plans not approved by security holders			
Total	2,214,545	\$7.90	2,199,325

- (1) Includes 300,000 shares issuable upon the settlement of restricted stock units without consideration. The weighted average exercise price of the outstanding options and rights other than these restricted stock units is \$9.14 per share. There are no warrants outstanding under our equity compensation plan. Includes shares issuable upon exercise of outstanding options under our 2013 Plan and 2018 Plan.
- (2) Consists of shares available under the 2018 Plan as of December 31, 2019. On January 1 of each year, the number of shares reserved under the 2018 Plan is automatically increased by 4% of the total number of shares of common stock that are outstanding at that time, or a lesser number of shares as may be determined by our Board of Directors. An additional 1,036,485 shares were added to the number of available shares under the 2018 Plan, effective January 1, 2020.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

The following includes a summary of transactions since January 1, 2018 to which we have been a party, in which the amount involved in the transaction exceeded \$120,000, and in which any of our directors, executive officers or, to our knowledge, beneficial owners of more than 5% of our voting securities or any member of the immediate family of any of the foregoing persons had or will have a direct or indirect material interest. Other than described below, there have not been, nor are there currently any proposed, transactions or series of similar transactions to which we have been or will be a party other than compensation arrangements, which include equity and other compensation, termination, change in control and other arrangements, which are described under "Executive Compensation" and "Non-Executive Director Compensation."

Participation in our Initial Public Offering

In our initial public offering in June 2018, certain of our directors, executive officers and 5% stockholders and their affiliates purchased an aggregate of 1,511,500 shares of our common stock. Each of those purchases was made through the underwriters at the initial public offering price of \$15.00 per share. The following table sets forth the aggregate number of shares of our common stock that these 5% stockholders and their affiliates purchased in our initial public offering:

Purchaser	Shares of Common Stock
Entities affiliated with Paul B. Manning	300,000
Perceptive Life Sciences Master Fund, Ltd.	1,000,000
OrbiMed Private Investments VI, LP	200,000
Ted White	4,500
Linda Palczuk	3,000
Joe Bonaccorso	1,000
Chris Degnan	3,000

Sales of Series C Convertible Preferred Stock

In February 2018, we sold an aggregate of 4,386,926 shares of our Series C convertible preferred stock at a price of \$4.559 per share for aggregate gross proceeds of \$20 million, including 2,193,463 shares that were sold to Perceptive Life Sciences Master Fund, Ltd., a beneficial owner of more than 5% of our capital stock, for a purchase price of \$10 million and 2,193,463 shares of which were sold to OrbiMed Private Investments VI, LP, a beneficial owner of more than 5% of our capital stock, for a purchase price of \$10 million. In March 2018, we sold an additional 219,341 shares to certain other investors, for a purchase price of \$1 million, including 29,611 shares that were sold to PBM Capital Group, LLC, an affiliate of PBM VP Holdings, LLC. Of the shares acquired by PBM Capital Group, LLC, 3,948 were sold to an unrelated third party and 25,663 shares were distributed to certain Co-Investors. Each share of Series C convertible preferred stock converted into 0.583 shares of common stock upon the closing of our initial public offering.

Investors' Rights Agreement

In connection with the sales of convertible preferred stock described above, we entered into an investors' rights agreement with the holders of preferred stock. The provisions of the investors' rights agreement other than those relating to registration rights terminated upon the closing of our initial public offering.

Services Agreement with PBM Capital Group, LLC

In December 2015, we entered into a services agreement (the "SA") with PBM Capital Group, LLC, an entity controlled by Paul B. Manning, one of our directors, to engage PBM Capital Group, LLC for certain scientific and technical, accounting, operations and back office support services. The management fee was \$2,500 per month.

In March 2018, we entered into an amendment to the SA with PBM Capital Group, LLC effective as of April 1, 2018, which extended the term of the SA until March 31, 2019 and increased the management fee we are obligated to pay to PBM Capital Group, LLC to \$50,000 per month. The SA, as amended, provides for termination by us with 30 days advance notice or a mutually agreed upon effective date for transition as individual services are cancelled with a corresponding reduction in the monthly management fee. Pursuant to the SA, we paid \$457,500 to PBM Capital Group, LLC during the year ended December 31, 2018. On January 1, 2019 and October 1, 2019 the SA was further amended to reduce the monthly management fee to \$26,333 and \$5,000, respectively, as a result of a reduction in services provided by PBM Capital Group, LLC. During the year ended December 31, 2019 and 2018, we paid \$252,000 and \$457,000, respectively, to PBM Capital Group, LLC.

Transition Agreement with Dr. Davidson

Pursuant to a transition agreement entered into effective as of May 31, 2018 between us and Dr. Davidson, Dr. Davidson resigned from his position as our Chief Scientific Officer and from our Board of Directors effective upon our initial public offering. Upon Dr. Davidson's resignation, and pursuant to the terms of the transition agreement, Dr. Davidson became entitled to certain benefits, including: (i) the opportunity to continue to provide services to us, in the capacity of a consultant, pursuant to an agreed-upon consulting agreement; (ii) costs of COBRA premiums for Dr. Davidson and his covered dependents for up to 12 months after his resignation; and (iii) the opportunity to serve on our scientific advisory board for one year or, if longer, the term of his consulting agreement. The benefits provided to Dr. Davidson under the transition agreement have been provided to Dr. Davidson in exchange for his agreeing to a standard release of claims in favor of us.

In his role as a consultant, Dr. Davidson provides general transition and consulting services to us until the earlier of the date that the FDA approves or rejects the NDA for VP-102 or the date that Dr. Davidson's restricted shares are fully vested. Under the terms of the transition agreement, the shares of restricted common stock that Dr. Davidson currently owns will continue to vest in accordance with their terms during the consulting period; *provided, however*, that if we terminate the consulting agreement due to a material breach by Dr. Davidson, any unvested stock would be forfeited, or alternatively, if we terminate such agreement for any other reason other than due to a material breach by Dr. Davidson or if Dr. Davidson terminates such agreement due to material breach by us, any unvested stock will become fully vested.

For the first year of the consulting period, Dr. Davidson received a monthly consulting fee of \$29,375 for his performance of transition services. Dr. Davidson now receives \$300 per hour for each additional hour of consulting services he provides. During the years ended December 31, 2019 and 2018, Dr. Davidson did not receive any payments pursuant to the transition agreement.

During the consulting period, Dr. Davidson has agreed to refrain from competitive activities with us, including activities involving certain products that include cantharidin or certain other molecules and any reasonably related medicinal chemistry derivatives or analogs thereof, or any products being developed for the treatment of any of the following indications for which we are currently developing or considering: molluscum, common warts, plantar warts, subungual warts, flat warts, actinic keratosis, genital warts and seborrheic keratosis.

Indemnification Agreements

We have entered into indemnification agreements with each of our directors and executive officers. The indemnification agreements and our amended and restated certificate of incorporation and amended and restated bylaws require us to indemnify our directors and executive officers to the fullest extent permitted by Delaware law.

Related-Person Transactions Policy and Procedures

We have adopted a related person transaction policy that sets forth our procedures for the identification, review, consideration and approval or ratification of related person transactions. For purposes of our policy only, a related person transaction is a transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we and any related person are, were or will be participants in which the amount involved exceeds \$120,000. Transactions involving compensation for services provided to us as an employee or director are not covered by this policy. A related person is any executive officer, director or beneficial owner of more than 5% of any class of our voting securities, including any of their immediate family members and any entity owned or controlled by such persons.

Under the policy, if a transaction has been identified as a related person transaction, including any transaction that was not a related person transaction when originally consummated or any transaction that was not initially identified as a related person transaction prior to consummation, our management must present information regarding the related person transaction to our Audit Committee, or, if Audit Committee approval would be inappropriate, to another independent body of our Board of Directors, for review, consideration and approval or ratification. The presentation must include a description of, among other things, the material facts, the interests, direct and indirect, of the related persons, the benefits to us of the transaction and whether the transaction is on terms that are comparable to the terms available to or from, as the case may be, an unrelated third party or to or from employees generally. Under the policy, we will collect information that we deem reasonably necessary from each director, executive officer and, to the extent feasible, significant stockholder to enable us to identify any existing or potential related-

person transactions and to effectuate the terms of the policy. In addition, under our Code of Conduct, our employees and directors will have an affirmative responsibility to disclose any transaction or relationship that reasonably could be expected to give rise to a conflict of interest. In considering related person transactions, our Audit Committee, or other independent body of our Board of Directors, will take into account the relevant available facts and circumstances including:

- the risks, costs and benefits to us;
- the impact on a director's independence in the event that the related person is a director, immediate family member of a director or an entity with which a director is affiliated;
- the availability of other sources for comparable services or products; and
- the terms available to or from, as the case may be, unrelated third parties or to or from employees generally.

The policy requires that, in determining whether to approve, ratify or reject a related person transaction, our Audit Committee, or other independent body of our Board of Directors, must consider, in light of known circumstances, whether the transaction is in, or is not inconsistent with, our best interests and those of our stockholders, as our Audit Committee, or other independent body of our Board of Directors, determines in the good faith exercise of its discretion.

Independence of the Board of Directors

Our Board of Directors has undertaken a review of the independence of the directors and considered whether any director has a material relationship with us that could compromise his or her ability to exercise independent judgment in carrying out his or her responsibilities. Based upon information requested from and provided by each director concerning such director's background, employment and affiliations, including family relationships, our Board of Directors determined that Mr. Ballaron, Mr. Prygocki and Dr. Goldenberg, representing three of our six directors, are "independent directors" as defined under current rules and regulations of the SEC and the listing standards of the Nasdaq Stock Market. Our Board of Directors also determined that Mr. Oclassen, who served on our Board of Directors until he passed away in November 2019, was an "independent director" as defined under current rules and regulations of the SEC and the listing standards of the Nasdaq Stock Market. In making these determinations, our Board of Directors considered the current and prior relationships that each non-employee director has with our company and all other facts and circumstances that our Board of Directors deemed relevant in determining their independence. There are no family relationships among any of our directors or executive officers.

As a result of Mr. Oclassen's death, we are currently not in compliance with the continued listing requirements as set forth in Nasdaq Listing Rules 5605(b)(1) regarding the composition of our board of directors because a majority of the board is not comprised of "independent directors." We are relying on the cure periods set forth in Listing Rule 5605(b)(1)(A) of the Nasdaq Listing Rules with respect to the composition of our board of directors.

We expect to regain compliance with Listing Rule 5605 prior to the expiration of the cure period provided by Nasdaq.

Item 14. Principal Accounting Fees and Services.

The following table represents aggregate fees for professional services rendered to us for the years ended December 31, 2019 and 2018 by KPMG LLP, our independent registered public accounting firm.

	Year Ended December 31,	
	2019	2018
Audit Fees ⁽¹⁾	\$ 325,000	\$ 640,000
Total Fees	\$ 325,000	\$ 640,000

(1) Audit fees for the fiscal years ended December 31, 2019 and 2018 include fees in connection with services rendered for the audit and quarterly review of our financial statements filed with the SEC on Form 10-K and 10-Q in addition to professional services related to financial procedures performed in connection with securities offerings.

There were no audit-related, tax or other fees for the years ended December 31, 2019 and 2018.

Our Audit Committee has adopted a policy and procedures for the pre-approval of audit and non-audit services rendered by our independent auditors, KPMG LLP. The Audit Committee generally pre-approves specified services in the defined categories of audit services, audit-related services and tax services 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 auditor or on an individual, explicit, case-by-case basis before the independent auditor 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.

All of the services of KPMG LLP for the years ended December 31, 2019 and 2018 described above were pre-approved in accordance with the Audit Committee pre-approval policy.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

We have filed the following documents as part of this Annual Report:

(a)(1) Financial Statements

The financial statements are included in Item 8. “Financial Statements and Supplementary Data.”

(a)(2) Financial Statement Schedules

All schedules are omitted as information required is inapplicable or the information is presented in the financial statements and the related notes.

(a)(3) Exhibits

Exhibit Number	Description of Exhibit
3.1	Amended and Restated Certificate of Incorporation of the Registrant (incorporated herein by reference to Exhibit 3.3 to the Registrant’s Registration Statement on Form S-1 (File No. 333-225104), filed with the Securities and Exchange Commission on May 22, 2018)
3.2	Amended and Restated Bylaws of the Registrant (incorporated herein by reference to Exhibit 3.4 to the Registrant’s Registration Statement on Form S-1 (File No. 333-225104), filed with the Securities and Exchange Commission on May 22, 2018)
4.1	Description of Verrica Pharmaceuticals Inc. Common Stock.
10.1	Amended and Restated Investors’ Rights Agreement by and among the Registrant and certain of its stockholders, dated February 20, 2018 (incorporated herein by reference to Exhibit 10.1 to the Registrant’s Registration Statement on Form S-1 (File No. 333-225104), filed with the Securities and Exchange Commission on May 22, 2018)
10.2+	2013 Equity Incentive Plan, as amended (incorporated herein by reference to Exhibit 10.2 to the Registrant’s Registration Statement on Form S-1 (File No. 333-225104), filed with the Securities and Exchange Commission on May 22, 2018)
10.3+	Form of Stock Option Grant Notice and Stock Option Agreement under 2013 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.3 to the Registrant’s Registration Statement on Form S-1 (File No. 333-225104), filed with the Securities and Exchange Commission on May 22, 2018)
10.4+	2018 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.4 to Amendment No. 1 to the Registrant’s Registration Statement on Form S-1 (File No. 333-225104), filed with the Securities and Exchange Commission on June 5, 2018)
10.5+	Form of Stock Option Grant Notice, Stock Option Agreement, Restricted Stock Unit Grant Notice, and Restricted Stock Unit Award Agreement under 2018 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.5 to Amendment No. 1 to the Registrant’s Registration Statement on Form S-1 (File No. 333-225104), filed with the Securities and Exchange Commission on June 5, 2018)
10.6+	Form of Indemnification Agreement with Executive Officers and Directors (incorporated herein by reference to Exhibit 10.6 to the Registrant’s Registration Statement on Form S-1 (File No. 333-225104), filed with the Securities and Exchange Commission on May 22, 2018)
10.7	Services Agreement, by and between the Registrant and PBM Capital Group, LLC, dated as of December 2, 2015, as amended on March 29, 2018 (incorporated herein by reference to Exhibit 10.12 to the Registrant’s Registration Statement on Form S-1 (File No. 333-225104), filed with the Securities and Exchange Commission on May 22, 2018)

- 10.8+ [Advisor Agreement, by and between the Registrant and Glenn Oclassen, dated as of August 7, 2014 \(incorporated herein by reference to Exhibit 10.13 to the Registrant's Registration Statement on Form S-1 \(File No. 333-225104\), filed with the Securities and Exchange Commission on May 22, 2018\)](#)
- 10.9+ [Restricted Stock Purchase Agreement, by and between the Registrant and Glenn Oclassen, dated as of August 7, 2014, as amended on January 31, 2018 \(incorporated herein by reference to Exhibit 10.15 to the Registrant's Registration Statement on Form S-1 \(File No. 333-225104\), filed with the Securities and Exchange Commission on May 22, 2018\)](#)
- 10.10 [Sublease Agreement, by and between Therakos, Inc. and the Registrant, dated as of April 9, 2018 \(incorporated herein by reference to Exhibit 10.17 to the Registrant's Registration Statement on Form S-1 \(File No. 333-225104\), filed with the Securities and Exchange Commission on May 22, 2018\)](#)
- 10.11+ [Non-Employee Director Compensation Policy \(incorporated herein by reference to Exhibit 10.18 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 \(File No. 333-225104\), filed with the Securities and Exchange Commission on June 5, 2018\)](#)
- 10.12+ [Transition Agreement, by and between the Registrant and Matt Davidson, effective as of May 31, 2018 \(incorporated herein by reference to Exhibit 10.19 to Amendment No. 1 the Registrant's Registration Statement on Form S-1 \(File No. 333-225104\), filed with the Securities and Exchange Commission on June 5, 2018\)](#)
- 10.13# [Supply Agreement, by and between the Registrant and Funing County Development Brucea Javanica Professional Cooperatives, dated as of July 16, 2018 \(incorporated herein by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q \(File No. 001-38529\), filed with the Securities and Exchange Commission on November 7, 2018\)](#)
- 10.14 [Second Amendment to Services Agreement, by and between the Registrant and PBM Capital Group, LLC, dated as of January 1, 2019 \(incorporated herein by reference to Exhibit 10.19 to the Registrant's Annual Report on Form 10-K \(File No. 001-38529\), filed with the Securities and Exchange Commission on March 7, 2019\)](#)
- 10.15 [Lease Agreement, by and between the Registrant and 44 West Gay LLC, dated as of July 1, 2019 \(incorporated herein by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K \(File No. 001-38529\), filed with the Securities and Exchange Commission on July 1, 2019\)](#)
- 10.16+ [Employment Agreement, by and between the Registrant and A. Brian Davis, dated as of October 18, 2019 \(incorporated herein by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q \(File No. 001-38529\), filed with the Securities and Exchange Commission on November 6, 2019\)](#)
- 10.17 [Third Amendment to Services Agreement, by and between the Registrant and PBM Capital Group, LLC, dated as of October 1, 2019 \(incorporated herein by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q \(File No. 001-38529\), filed with the Securities and Exchange Commission on November 6, 2019\)](#)
- 10.18+ [Amended and Restated Employment Agreement, by and between the Registrant and Ted White, dated as of January 10, 2020](#)
- 10.19+ [Amended and Restated Employment Agreement, by and between the Registrant and Joe Bonaccorso, dated as of January 10, 2020](#)
- 10.20+ [Amended and Restated Employment Agreement, by and between the Registrant and Patrick Burnett, dated as of January 10, 2020](#)
- 23.1 [Consent of KPMG LLP, independent registered public accounting firm](#)
- 24.1 [Power of Attorney \(included on signature page\)](#)
- 31.1 [Certification of Principal Executive Officer pursuant to Rules 13a-14\(a\) and 15d-14\(a\), promulgated under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002](#)

31.2	Certification of Principal Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a), promulgated under the Securities Exchange Act of 1934, as adopted pursuant to section 302 of the Sarbanes-Oxley Act of 2002.
32.1 [^]	Certification of Principal Executive Officer and Principal Financial Officer pursuant to Rules 13a-14(b) and 15d-14(b), promulgated under the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, as adopted pursuant to section 906 of The Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

+ Indicates management contract or compensatory plan.

Confidential treatment has been granted with respect to portions of this exhibit (indicated by asterisks) and those portions have been separately filed with the Securities and Exchange Commission.

[^] These certifications are being furnished solely to accompany this Annual Report pursuant to 18 U.S.C. Section 1350, and are not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and are not to be incorporated by reference into any filing of the Registrant, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

ITEM 16. FORM 10-K SUMMARY

Not applicable.

DESCRIPTION OF VERRICA PHARMACEUTICALS INC. COMMON STOCK

The following description of the common stock of Verrica Pharmaceuticals Inc., or the Company, is a summary and does not purport to be complete. This summary is qualified in its entirety by reference to the provisions of the Delaware General Corporation Law, or the DGCL, and the complete text of the Company's amended and restated certificate of incorporation, or certificate of incorporation, and amended and restated bylaws, or the bylaws, which are incorporated by reference as Exhibits 3.1 and 3.2, respectively, of the Company's Annual Report on Form 10-K to which this description is also an exhibit. The Company encourages you to read that law and those documents carefully.

Common Stock***Authorized Capital Stock***

The certificate of incorporation authorizes the issuance of up to 200,000,000 shares of common stock, \$0.0001 par value per share, and 10,000,000 shares of preferred stock, \$0.0001 par value per share. The Company's board of directors may establish the rights and preferences of the preferred stock from time to time.

Voting Rights

Each holder of 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 the certificate of incorporation and bylaws, common stockholders do not have cumulative voting rights. Because of this, the holders of a majority of the shares of common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they should so choose.

Dividends

Subject to preferences that may be applicable to any then-outstanding preferred stock, holders of common stock are entitled to receive ratably those dividends, if any, as may be declared from time to time by the board of directors out of legally available funds.

Liquidation

In the event of the Company's liquidation, dissolution or winding up, holders of common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of 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 common stock have no preemptive, conversion or subscription rights and there are no redemption or sinking fund provisions applicable to the common stock. The rights, preferences and privileges of the holders of common stock are subject to, and may be adversely affected by, the right of the holders of shares of any series of preferred stock that we may designate in the future.

Anti-Takeover Provisions

Section 203 of the Delaware General Corporation Law

The Company is subject to Section 203 of the DGCL, 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 or any direct or indirect majority-owned subsidiary of 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 (in one transaction or a series of transactions);
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation or by any direct or indirect majority-owned subsidiary of the corporation of any stock of the corporation or of such subsidiary to the interested stockholder;
- any transaction involving the corporation or any direct or indirect majority-owned subsidiary of 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.

Anti-Takeover Effects of Certain Provisions of the Certificate of Incorporation and Bylaws

The certificate of incorporation provides for the Company's 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 stockholders, with the other classes continuing for the remainder of their respective three-year terms. Because the Company's stockholders do not have cumulative voting rights, stockholders holding a majority of the shares of common stock outstanding will be able to elect all of the Company's directors. The certificate of incorporation and bylaws also provide that directors may be removed by the stockholders only for cause upon the vote of 66 2/3% or more of the Company's 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, only be filled by a majority vote of the directors then serving on the board, even though less than a quorum.

The certificate and incorporation and bylaws also provide that all stockholder actions must be effected at a duly called meeting of stockholders and will eliminate the right of stockholders to act by written consent without a meeting. The Company's bylaws also provide that only the 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.

The bylaws also provide that stockholders seeking to present proposals before the meeting of stockholders to nominate candidates for election as directors at a meeting of stockholders must provide timely advance notice in writing, and specifies requirements as to the form and content of a stockholder's notice.

The certificate of incorporation and bylaws provide that the stockholders cannot amend many of the provisions described above except by a vote of 66 2/3% or more of the Company's outstanding common stock.

The combination of these provisions could make it more difficult for the Company's existing stockholders to replace the board of directors as well as for another party to obtain control of the Company by replacing the board of directors. Since the board of directors has the power to retain and discharge the Company's officers, these provisions could 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 the board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change the Company's control.

These provisions are intended to enhance the likelihood of continued stability in the composition of the board of directors and its policies and to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to reduce the Company's 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 the Company's 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 the Company's stock that could result from actual or rumored takeover attempts. The Company believes that the benefits of these provisions, including increased protection of its

potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure the Company, outweigh the disadvantages of discouraging takeover proposals, because negotiation of takeover proposals could result in an improvement of their terms.

Choice of Forum

The certificate of incorporation provides that the Court of Chancery of the state of Delaware will be the exclusive forum for:

- any derivative action or proceeding brought on the Company's behalf;
- any action asserting a breach of fiduciary duty;
- any action asserting a claim against us arising pursuant to the DGCL, the Company's certificate of incorporation or the bylaws; or
- any action asserting a claim against the Company that is governed by the internal affairs doctrine.

The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that, in connection with any action, a court could find the choice of forum provisions contained in the Company's certificate of incorporation to be inapplicable or unenforceable in such action.

The Company's certificate of incorporation provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act.

Transfer Agent and Registrar

The transfer agent and registrar for the Company's common stock is American Stock Transfer & Trust Company. The transfer agent's address is 6201 15th Avenue, Brooklyn, New York 11219.

Stock Exchange Listing

The common stock is listed on The Nasdaq Global Market under the trading symbol VRCA.

AMENDED AND RESTATED EMPLOYMENT AGREEMENT

This **AMENDED AND RESTATED EMPLOYMENT AGREEMENT** (the "**Agreement**"), by and between Verrica Pharmaceuticals Inc., a Delaware corporation (the "**Company**") and Ted White (the "**Employee**"), amends, restates, and supersedes in its entirety the Employment Agreement between the Company and the Employee that was effective December 11, 2017 (the "**Prior Agreement**"). This Agreement is entered into effective January 10, 2020 (the "**Effective Date**"). Company and Employee are each herein referred to individually as a "**Party**," or collectively as the "**Parties**").

Whereas, the Company desires to continue to employ the Employee in the capacity of full-time President and Chief Executive Officer pursuant to the terms of this Agreement and, in connection therewith, to compensate the Employee for Employee's personal services to the Company; and

Whereas, the Employee wishes to continue to be employed by the Company and provide personal services to the Company in return for certain compensation.

Accordingly, in consideration of the mutual promises and covenants contained herein, the parties agree to the following:

1. EMPLOYMENT BY THE COMPANY.

1.1 At-Will Employment. Employee shall continue to be employed by the Company on an "at-will" basis, meaning either the Company or Employee may terminate Employee's employment at any time, with or without cause or advanced notice. Any contrary representations that may have been made to Employee shall be superseded by this Agreement. This Agreement shall constitute the full and complete agreement between Employee and the Company on the "at-will" nature of Employee's employment with the Company, which may be changed only in an express written agreement signed by Employee and a duly authorized officer of the Company. Employee's rights to any compensation following a termination shall be only as set forth in Section 6.

1.2 Position. Subject to the terms set forth herein, the Company agrees to continue to employ Employee, initially, in the position of President and Chief Executive Officer and Employee hereby accepts such continued employment. During the term of Employee's employment with the Company, Employee will continue to devote Employee's best efforts and substantially all of Employee's business time and attention to the business of the Company.

1.3 Duties. Employee will continue to report to the Board of Directors ("**Board**") of the Company, performing such duties as are normally associated with his position and such duties as are assigned to him from time to time, subject to the oversight and direction of the Board. Employee shall perform his duties under this Agreement principally out of the Company's corporate headquarters in West Chester, Pennsylvania or such other location as assigned. In addition, the Employee shall make such business trips to such places as may be necessary or advisable for the efficient operations of the Company.

1.4 **Compan Policies and Benefits.** The employment relationship between the parties shall remain subject to the Company's personnel policies and procedures as they may be interpreted, adopted, revised or deleted from time to time in the Company's sole discretion. The Employee remains eligible to participate on the same basis as similarly situated employees in the Company's benefit plans and paid time off policies, in all cases, as in effect from time to time during his employment. All matters of eligibility for coverage or benefits under any benefit plan shall be determined in accordance with the provisions of such plan. The Company reserves the right to change, alter, or terminate any benefit plan in its sole discretion. Notwithstanding the foregoing, in the event that the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

2. COMPENSATION.

2.1 **Salary.** Employee shall receive for Employee's services to be rendered hereunder an initial annualized base salary of \$440,000 per year, subject to review and adjustment from time to time by the Company in its sole discretion, payable subject to standard federal and state payroll withholding requirements in accordance with Company's standard payroll practices ("**Base Salary**").

2.2 Bonus.

(a) **During Employment.** Employee shall be eligible to earn an annual performance bonus with a target amount equal to 45% (the "**Target Percentage**") of his Base Salary ("**Annual Bonus**"). The Annual Bonus will be based upon the Board's assessment of the Employee's performance and the Company's attainment of targeted goals as set by the Board in its sole discretion. The Annual Bonus, if any, will be subject to applicable payroll deductions and withholdings. Following the close of each calendar year, the Board will determine whether the Employee has earned the Annual Bonus, and the amount of any Annual Bonus, which can be above or below the Target Percentage, based on the set criteria. No amount of the Annual Bonus is guaranteed, and the Employee must be an employee in good standing on the Annual Bonus payment date to be eligible to receive an Annual Bonus; no partial or prorated bonuses will be provided. The Annual Bonus, if earned, will be paid no later than March 15 of the calendar year immediately following the applicable calendar year for which the Annual Bonus is being measured. The Employee's eligibility for an Annual Bonus is subject to change in the discretion of the Board (or any authorized committee thereof).

(b) **Upon Termination.** In the event Employee leaves the employ of the Company for any reason prior to payment of any bonus, he is not eligible for such bonus, prorated or otherwise.

2.3 **Future Equitv Awards.** Employee remains eligible to be considered for future equity awards as may be determined by the Board or a committee of the Board in its discretion in accordance with the terms of any applicable equity plan or arrangement that may be in effect from time to time.

2.4 **Expense Reimbursement.** The Company will reimburse Employee for all reasonable, documented business expenses incurred in connection with his services hereunder, in accordance with the Company's business expense reimbursement policies and procedures as may be in effect from time to time.

3. **CONFIDENTIAL INFORMATION, INVENTIONS, NON-COMPETITION AND NON- SOLICITATION OBLIGATIONS.** As a condition of continued employment, and in consideration for the benefits provided under this Agreement that were not provided under the Prior Agreement, Employee agrees to execute and abide by an **Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement** attached as **Exhibit A** (the "**Confidential Information Agreement**"), which may be amended by the parties from time to time without regard to this Agreement. The Confidential Information Agreement contains provisions that are intended by the parties to survive and do survive termination or expiration of this Agreement.

4. **OUTSIDE ACTIVITIES.** Except with the prior written consent of the Company's Board, Employee will not, while employed by the Company, undertake or engage in any other employment, occupation or business enterprise that would interfere with Employee's responsibilities and the performance of Employee's duties hereunder except for (i) reasonable time devoted to volunteer services for or on behalf of such religious, educational, non-profit and/or other charitable organization as Employee may wish to serve; (ii) reasonable time devoted to activities in the non-profit and business communities consistent with Employee's duties; (iii) reasonable time devoted to service on boards of directors of companies that are not competitive with the Company, do not otherwise present a conflict of interest and would not otherwise interfere with Employee's responsibilities and the performance of Employee's duties hereunder, subject to the prior written approval of the Board (which approval shall not be unreasonably withheld); and (iv) such other activities that would not interfere with Employee's responsibilities and the performance of Employee's duties hereunder as may be specifically approved by the Board (which approval shall not be unreasonably withheld). This restriction shall not, however, preclude the Employee from owning less than one percent (1%) of the total outstanding shares of a publicly traded company.

5. **No CONFLICT WITH EXISTING OBLIGATIONS.** Employee represents that Employee's performance of all the terms of this Agreement and as an Employee of the Company do not and will not breach any agreement or obligation of any kind made prior to Employee's employment by the Company, including agreements or obligations Employee may have with prior employers or entities for which Employee has provided services. Employee has not entered into, and Employee agrees that Employee will not enter into, any agreement or obligation, either written or oral, in conflict herewith.

6. **TERMINATION OF EMPLOYMENT.** The parties acknowledge that Employee's employment relationship with the Company continues to be at-will. Either Employee or the Company may terminate the employment relationship at any time, with or without Cause. The provisions in this Section govern the amount of compensation, if any, to be provided to Employee upon termination of employment and do not alter this at-will status.

6.1 **Termination by the Company Without Cause (not in Connection with a Change in Control).**

(a) The Company shall have the right to terminate Employee's employment with the Company pursuant to this Section 6.1 at any time without "Cause" (as defined in Section 6.2(a) below) by giving notice as described in Section 6.7 of this Agreement.

A termination pursuant to Section 6.6 below is not a termination without "Cause" for purposes of receiving the benefits described in this Section 6.1.

(b) In the event Employee's employment is terminated without Cause at any time except during the Change in Control Measurement Period (as defined in Section 6.4 below), then provided that the Employee executes and does not revoke a separation agreement that includes a general release substantially in the form attached hereto as **Exhibit B** (the "**Release**"), and subject to Section 6.1(c) (the date that the Release becomes effective and may no longer be revoked by the Employee is referred to as the "**Release Date**"), then Employee shall be eligible for the following "**Non-CIC Severance Benefits**":

(i) the Company shall pay to Employee an amount equal to Employee's then current Base Salary for the Severance Period (as defined below), less applicable withholdings and deductions, in installments in accordance with the Company's ordinary payroll practices commencing on the Company's first regular payroll date that is more than sixty (60) days following the Separation Date (as defined below), and shall be for any accrued Base Salary for the sixty (60) day period plus the period from the sixtieth (60th) day until the regular payroll date, if applicable, and all salary continuation payments thereafter, if any, shall be made on the Company's regular payroll dates; and

(ii) if the Employee timely elects continued coverage under COBRA for himself and his covered dependents under the Company's group health plans following such termination, then the Employee will be entitled to the following COBRA benefits: the Company shall pay the COBRA premiums necessary to continue the Employee's and his covered dependents' health insurance coverage in effect for himself (and his covered dependents) on the termination date until the earliest of (x) a number of months following the termination date equal to the Severance Period; (y) the date when the Employee becomes eligible for health insurance coverage in connection with new employment or self-employment; or (iii) the date the Employee ceases to be eligible for COBRA continuation coverage for any reason, including plan termination (such period from the termination date through the earlier of (i)-(iii), the "**Non-CIC COBRA Payment Period**"). Notwithstanding the foregoing, if at any time the Company determines that its payment of COBRA premiums on the Employee's behalf would result in a violation of applicable law (including but not limited to the 2010 Patient Protection and Affordable Care Act, as amended by the 2010 Health Care and Education Reconciliation Act), then in lieu of paying COBRA premiums pursuant to this Section, the Company shall pay the Employee on the last day of each remaining month of the Non-CIC COBRA Payment Period, a fully taxable cash payment equal to the COBRA premium for such month, subject to applicable tax withholding (such amount, the "**Special Severance Payment**"), such Special Severance Payment to be made without regard to the Employee's payment of COBRA premiums and without regard to the expiration of the COBRA period prior to the end of the Non-CIC COBRA Payment Period. Nothing in this Agreement shall deprive the Employee of his rights under COBRA or ERISA for benefits under plans and policies arising under his employment by the Company.

(c) Employee shall not receive the Non-CIC Severance Benefits pursuant to Section 6.1(b), or the CIC Severance Benefits (as defined below) pursuant to Section 6.4(a), unless he executes the Release within the consideration period specified therein, which shall in no event be more than sixty (60) days, and until the Release becomes effective and can

no longer be revoked by Employee under its terms. Employee's ability to receive benefits pursuant to Section 6.1(b) or Section 6.4(a) is further conditioned upon his: returning all Company property; complying with his post-termination obligations under this Agreement and the Confidential Information Agreement; resigning from any positions Employee holds with the Company or any affiliate, including a position on the Board, to be effective no later than Employee's termination date (or such other date as requested by the Board); and complying with the Release including without limitation any non-disparagement and confidentiality provisions contained therein.

(d) The benefits provided to Employee pursuant to this Section 6.1 are in lieu of, and not in addition to, any benefits to which Employee may otherwise be entitled under any Company severance plan, policy or program. For avoidance of doubt, Employee shall not be eligible for both CIC Severance Benefits and Non-CIC Severance Benefits.

(e) The damages caused by the termination of Employee's employment without Cause would be difficult to ascertain; therefore, the severance for which Employee is eligible pursuant to Section 6.1(b) above in exchange for the Release is agreed to by the parties as liquidated damages, to serve as full compensation and not a penalty.

(f) For purposes of this Agreement, "**Severance Period**" shall mean (i) zero (0) months in the event a termination under this Section 6.1 or under Section 6.3 (an "**Involuntary Termination**") occurs on or before December 11, 2018 (ii) six (6) months in the event an Involuntary Termination occurs after December 11, 2018 and on or before December 11, 2019, and (iii) twelve (12) months in the event an Involuntary Termination occurs after December 11, 2019.

6.2 **Termination by the Company for Cause.** Subject to Section 6.2(b) below, the Company shall have the right to terminate Employee's employment with the Company at any time for Cause by giving notice as described in this Section 6.2 and in Section 6.6 of this Agreement.

(a) "**Cause**" for termination shall mean the occurrence of any of the following: (i) Employee's conviction of any felony or any crime involving fraud or dishonesty; (ii) Employee's participation in a fraud, act of dishonesty or other act of gross misconduct that adversely affects the Company; (iii) conduct by Employee that demonstrates Employee's gross unfitness to serve under circumstances that materially and adversely affect the Company; (iv) Employee's violation of any statutory or fiduciary duty, or duty of loyalty, owed to the Company; (v) Employee's breach of any material term of any contract between such Employee and the Company; and/or (vi) Employee's serious violation of a material Company policy. Whether a termination is for Cause shall be decided by the Board in its sole and exclusive judgment and discretion. Prior to termination for Cause pursuant to each event listed in (iii) and (iv) above, the Company shall give the Employee notice of such event(s), which notice shall specify in reasonable detail the circumstances constituting Cause, and an opportunity to explain the circumstances. Prior to any termination for Cause pursuant to each event listed in (v) and (vi) above, to the extent such event(s) is (are) capable of being cured by Employee, (A) the Company shall give the Employee notice of such event(s), which notice shall specify in reasonable detail the circumstances constituting Cause, and an opportunity to cure, and (B) there shall be no Cause with respect to any such event(s) if the Board determines in good faith that

such events have been cured by Employee within fifteen (15) days after the delivery of such notice.

(b) In the event Employee's employment is terminated at any time for Cause, Employee will not receive the Non-CIC Severance Benefits described in Section 6.1(b), the CIC Severance Benefits described in Section 6.4(a), or any other severance compensation or benefit, except that, pursuant to the Company's standard payroll policies, the Company shall pay to Employee the accrued but unpaid salary of Employee through the date of termination, together with all compensation and benefits payable to Employee based on his participation in any compensation or benefit plan, program or arrangement through the date of termination.

6.3 Resignation by the Employee With Good Reason (not in Connection with a Change in Control).

(a) Employee may resign from Employee's employment with the Company for Good Reason by giving notice following the end of the Cure Period (as defined in this Section). For purposes of this Agreement, "**Good Reason**" for the Employee to terminate his employment hereunder shall mean any of following actions are taken by the Company without Employee's prior written consent: (i) a material reduction by the Company of

Employee's Base Salary as initially set forth herein or as the same may be increased from time to time, provided, however, that if such reduction occurs in connection with a Company-wide decrease in executive team compensation, such reduction shall not constitute Good Reason; (ii) a material breach of this Agreement by the Company; (iii) the relocation of Employee's principal place of employment, without Employee's consent, by fifty (50) or more miles from his then current principal place of employment immediately prior to such relocation; or (iv) a material reduction in Employee's title, duties, authority, or responsibilities relative to Employee's title, duties, authority, or responsibilities in effect immediately prior to such reduction; *provided, however*, that, any such termination by Employee shall only be deemed for Good Reason pursuant to this definition if: (1) Employee gives the Company written notice of his intent to terminate for Good Reason within thirty (30) days following the occurrence of the condition(s) that he believes constitute(s) Good Reason, which notice shall describe such condition(s); (2) the Company fails to remedy such condition(s) within thirty (30) days following receipt of the written notice (the "**Cure Period**"); and (3) Employee voluntarily terminates his employment within thirty (30) days following the end of the Cure Period.

(b) In the event Employee resigns from employment for Good Reason at any time except during the Change in Control Measurement Period, then provided that the Employee executes and does not revoke the Release and subject to Section 6.1(c), then the Company shall pay to Employee the Non-CIC Severance Benefits described in Section 6.1(b).

6.4 Termination by the Company without Cause or Resignation by Employee for Good Reason (in connection with a Change in Control).

(a) In the event that Employee's employment is terminated without Cause or Employee resigns for Good Reason in either case within twelve (12) months following or one (1) month prior to the effective date of a Change in Control ("**Change in Control Measurement Period**") of the Company, then provided that the Employee executes and does not revoke the Release and subject to Employee's compliance with the requirements of Section 6.1(c), then Employee will be eligible for the following "**CIC Severance Benefits**:"

(i) the Company shall pay to Employee an amount equal to Employee's then current Base Salary for twelve (12) months, less applicable withholdings and deductions, in installments in accordance with the Company's ordinary payroll practices commencing on the Company's first regular payroll date that is more than sixty (60) days following the Separation Date, and shall be for any accrued Base Salary for the sixty (60) day period plus the period from the sixtieth (60th) day until the regular payroll date, if applicable, and all salary continuation payments thereafter, shall be made on the Company's regular payroll dates; and

(ii) the Company will pay a cash severance benefit equal to the Employee's Annual Bonus paid at the Target Percentage for the year in which Employee's Separation Date occurs. Such cash severance benefit will be paid in a single lump sum cash payment on the Company's first regular payroll date that is more than sixty (60) days following the Separation Date.

(iii) if the Employee timely elects continued coverage under COBRA for himself and his covered dependents under the Company's group health plans following such termination, then the Employee will be entitled to the following COBRA benefits: the Company shall pay the COBRA premiums necessary to continue the Employee's and his covered dependents' health insurance coverage in effect for himself (and his covered dependents) on the termination date until the earliest of (x) twelve (12) months following the termination date; (y) the date when the Employee becomes eligible for health insurance coverage in connection with new employment or self-employment; or (iii) the date the Employee ceases to be eligible for COBRA continuation coverage for any reason, including plan termination (such period from the termination date through the earlier of (i)-(iii), the "**CIC COBRA Payment Period**"). Notwithstanding the foregoing, if at any time the Company determines that its payment of COBRA premiums on the Employee's behalf would result in a violation of applicable law (including but not limited to the 2010 Patient Protection and Affordable Care Act, as amended by the 2010 Health Care and Education Reconciliation Act), then in lieu of paying COBRA premiums pursuant to this Section, the Company shall pay the Employee on the last day of each remaining month of the CIC COBRA Payment Period the Special Severance Payment, such Special Severance Payment to be made without regard to the Employee's payment of COBRA premiums and without regard to the expiration of the COBRA period prior to the end of the CIC COBRA Payment Period. Nothing in this Agreement shall deprive the Employee of his rights under COBRA or ERISA for benefits under plans and policies arising under his employment by the Company.

(iv) With regard to Employee's equity awards: (i) The vesting and exercisability of all outstanding time-based vesting equity awards and performance-based vesting equity awards (together, the "**Equity Awards**") that are held by Employee on such date shall be accelerated in full as of the later of the effective date of such Change in Control and Employee's termination date, and (ii) any reacquisition or repurchase rights held by the Company in respect of common stock issued pursuant to any other Equity Awards granted Employee by the Company shall lapse in full as of the later of the effective date of such Change in Control and Employee's termination date. For purposes of determining the number of shares that will vest pursuant to this provision with respect to any performance-based vesting equity awards for which the performance period has not ended and that has multiple vesting levels depending upon the level of performance, vesting acceleration with respect to any ongoing

performance period(s) shall occur with respect to the number of shares subject to the award as if the applicable performance criteria had been attained at a 100% level or, if greater, based on actual performance as of the later of the effective date of the Change in Control and Employee's termination date. Notwithstanding the foregoing, this Section 6.4(a)(iv) shall not apply to common stock issued under or held in any plan sponsored by the Company or its affiliates that is intended to be qualified under Section 401(a) of the Internal Revenue Code of 1986, as amended. Notwithstanding any contrary terms governing the Equity Awards or common stock held by Employee, if a Change in Control has not occurred prior to Employee's termination date, no forfeiture of the Equity Awards will occur and no reacquisition or repurchase rights will be exercised by the Company for one month following the termination date, to enable the application of this paragraph if a Change in Control does occur during that month.

(b) The CIC Severance Benefits provided to Employee pursuant to this Section 6.4 are in lieu of, and not in addition to, any benefits to which Employee may otherwise be entitled under any Company severance plan, policy or program.

(c) Any damages caused by the termination of Employee's employment without Cause during the Change in Control Measurement Period would be difficult to ascertain; therefore, the CIC Severance Benefits for which Employee is eligible pursuant to Section 6.4(a) above in exchange for the Release are agreed to by the parties as liquidated damages, to serve as full compensation and not a penalty.

6.5 Resignation by the Employee Without Good Reason.

(a) Employee may resign from Employee's employment with the Company at any time by giving notice as described in Section 6.7.

(b) In the event Employee resigns from Employee's employment with the Company other than for Good Reason, Employee will not receive the Non-CIC Severance Benefits, the CIC-Severance Benefits, or any other severance compensation or benefit, except that, pursuant to the Company's standard payroll policies, the Company shall pay to Employee the accrued but unpaid salary of Employee through the date of resignation, together with all compensation and benefits payable to Employee through the date of resignation under any compensation or benefit plan, program or arrangement during such period and Employee shall be eligible for any benefit continuation or conversion rights provided by the provisions of a benefit plan or by law.

6.6 Termination by Virtue of Death or Disability of the Employee.

(a) In the event of Employee's death while employed pursuant to this Agreement, all obligations of the parties hereunder shall terminate immediately, and the Company shall, pursuant to the Company's standard payroll policies, pay to the Employee's legal representatives Employee's accrued but unpaid salary through the date of death together with all compensation and benefits payable to Employee based on his participation in any compensation or benefit plan, program or arrangement through the date of termination.

(b) Subject to applicable state and federal law, the Company shall at all times have the right, upon written notice to the Employee, to terminate this Agreement based on the Employee's Disability (as defined below). Termination by the Company of the

Employee's employment based on "**Disability**" shall mean termination because the Employee is unable due to a physical or mental condition to perform the essential functions of his position with or without reasonable accommodation for six (6) months in the aggregate during any twelve (12) month period or based on the written certification by two licensed physicians of the likely continuation of such condition for such period, provided that such condition meets the definition of a disability for coverage under the terms of Company's then-current long-term disability insurance plan. This definition shall be interpreted and applied consistent with the Americans with Disabilities Act, the Family and Medical Leave Act, and other applicable law. In the event Employee's employment is terminated based on the Employee's Disability, Employee will not receive the Non-CIC Severance Benefits, the CIC Severance Benefits, or any other severance compensation or benefit, except that, pursuant to the Company's standard payroll policies, the Company shall pay to Employee the accrued but unpaid salary of Employee through the date of termination, together with all compensation and benefits payable to Employee based on his participation in any compensation or benefit plan, program or arrangement through the date of termination.

6.7 Notice; Effective Date of Termination.

(a) Termination of Employee's employment (the "**Separation Date**") pursuant to this Agreement shall be effective as follows:

(i) ten (10) days after the Company has provided Employee with written notice of Employee's termination without Cause under Section 6.1 or 6.4;

(ii) For a termination for Cause: (aa) under Section 6.2(a)(i) or 6.2(a)(ii), immediately upon provision by the Company of written notice of the reasons to Employee; (bb) under Section 6.2(a)(iii) or 6.2(a)(iv), following the required written notice to Employee and expiration of the period during which Employee may explain; (cc) under Section 6.2(a)(v) or 6.2(a)(vi), following the required written notice to Employee and expiration of the 15-day cure period, if Employee has not cured;

(iii) immediately upon the Employee's death;

(iv) thirty (30) days after the Company gives notice to Employee of Employee's termination on account of Employee's Disability under Section 6.6, unless the Company specifies a later Separation Date, in which case, termination shall be effective as of such later Separation Date, *provided* that Employee has not returned to the full time performance of Employee's duties prior to such date;

(v) on the date specified in Employee's written notice of Employee's resignation for Good Reason, provided it is within thirty (30) days after the Cure Period has ended and the Company has failed to remedy any of the reasons for Good Reason set forth in Employee's initial notice under Section 6.3(a); or

(vi) ten (10) days after the Employee gives written notice to the Company of Employee's resignation, *provided* that the Company may set a Separation Date at any time between the date of notice and the date of resignation, in which case the Employee's resignation shall be effective as of such other date. Employee will receive compensation through the Separation Date.

(b) In the event notice of a termination under subsections (a)(iii) and (iv) is given orally, at the other party's request, the party giving notice must provide written confirmation of such notice within five (5) business days of the request in compliance with the requirement of Section 7.1 below. In the event of a termination for Cause, written confirmation shall specify the subsection(s) of the definition of Cause relied on to support the decision to terminate.

6.8 Cooperation With Company After Termination of Employment. Following termination of Employee's employment for any reason, Employee shall reasonably cooperate with the Company in all matters relating to the winding up of Employee's pending work including, but not limited to, any litigation in which the Company is involved, and the orderly transfer of any such pending work to such other Employees as may be designated by the Company.

6.9 Application of Section 409A. Notwithstanding anything to the contrary set forth herein, any payments and benefits provided under this Agreement that constitute "deferred compensation" within the meaning of Section 409A of the Internal Revenue Code of 1986, as amended ("**Code**") and the regulations and other guidance thereunder and any state law of similar effect (collectively, "**Section 409A**") shall not commence in connection with Employee's termination of employment unless and until Employee has also incurred a "separation from service" (as such term is defined in Treasury Regulation Section 1.409A-1(h)) ("**Separation From Service**"), unless the Company reasonably determines that such amounts may be provided to Employee without causing Employee to incur the additional 20% tax under Section 409A. It is intended that each installment of severance pay provided for in this Agreement is a separate "payment" for purposes of Treasury Regulation Section 1.409A-2(b)(2)(i). For the avoidance of doubt, it is intended that severance payments set forth in this Agreement satisfy, to the greatest extent possible, the exceptions from the application of Section 409A provided under Treasury Regulation Sections 1.409A-1(b)(4), 1.409A-1(b)(5), and 1.409A-1(b)(9). If the Company (or, if applicable, the successor entity thereto) determines that any payments or benefits constitute "deferred compensation" under Section 409A and Employee is, on the termination of service, a "specified employee" of the Company or any successor entity thereto, as such term is defined in Section 409A(a)(2)(B)(i) of the Code, then, solely to the extent necessary to avoid the incurrence of the adverse personal tax consequences under Section 409A, the timing of the payments and benefits shall be delayed until the earlier to occur of: (a) the date that is six months and one day after Employee's Separation From Service, or (b) the date of Employee's death (such applicable date, the "**Specified Employee Initial Payment Date**"). On the Specified Employee Initial Payment Date, the Company (or the successor entity thereto, as applicable) shall (i) pay to Employee a lump sum amount equal to the sum of the payments and benefits that Employee would otherwise have received through the Specified Employee Initial Payment Date if the commencement of the payment of such amounts had not been so delayed pursuant to this Section and (ii) commence paying the balance of the payments and benefits in accordance with the applicable payment schedules set forth in this Agreement. All reimbursements provided under this Agreement shall be subject to the following requirements:

(i) the amount of in-kind benefits provided or reimbursable expenses incurred in one taxable year shall not affect the in-kind benefits to be provided or the expenses eligible for reimbursement in any other taxable year, (ii) all reimbursements shall be paid as soon as administratively practicable, but in no event shall any reimbursement be paid after the last day of the taxable year following the taxable year in which the expense was incurred, and (iii) the right to

reimbursement or in-kind benefits is not subject to liquidation or exchange for any other benefit. It is intended that all payments and benefits under this Agreement shall either comply with or be exempt from the requirements of Section 409A, and any ambiguity contained herein shall be interpreted in such manner so as to avoid adverse personal tax consequences under Section 409A. Notwithstanding the foregoing, the Company shall in no event be obligated to indemnify the Employee for any taxes or interest that may be assessed by the Internal Revenue Service pursuant to Section 409A of the Code to payments made pursuant to this Agreement.

7. **GENERAL PROVISIONS.**

7.1 **Notices.** Any notices required hereunder to be in writing shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by electronic mail, telex or confirmed facsimile if sent during normal business hours of the recipient, and if not, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the Company at its primary office location and to Employee at Employee's address as listed on the Company payroll, or at such other address as the Company or the Employee may designate by ten (10) days advance written notice to the other.

7.2 **Severability.** Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provisions had never been contained herein.

7.3 **Waiver.** If either party should waive any breach of any provisions of this Agreement, such party shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement.

7.4 **Complete Agreement.** This Agreement constitutes the entire agreement between Employee and the Company with regard to the subject matter hereof. This Agreement is the complete, final, and exclusive embodiment of their agreement with regard to this subject matter and supersedes any prior oral discussions or written communications and agreements, including the Prior Agreement. This Agreement is entered into without reliance on any promise or representation other than those expressly contained herein, and it cannot be modified or amended except in writing signed by Employee and an authorized officer of the Company. The parties have entered into a separate Confidential Information Agreement and have or may enter into separate agreement related to stock option awards. These separate agreements govern other aspects of the relationship between the parties, have or may have provisions that survive termination of the Employee's employment under this Agreement, may be amended or superseded by the parties without regard to this Agreement and are enforceable according to their terms without regard to the enforcement provision of this Agreement.

7.5 **Counterparts.** This Agreement may be executed in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement.

7.6 **Headings.** The headings of the sections hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

7.7 **Successors and Assigns.** The Company shall assign this Agreement and its rights and obligations hereunder in whole, but not in part, to any Company or other entity with or into which the Company may hereafter merge or consolidate or to which the Company may transfer all or substantially all of its assets, if in any such case said Company or other entity shall by operation of law or expressly in writing assume all obligations of the Company hereunder as fully as if it had been originally made a party hereto, but may not otherwise assign this Agreement or its rights and obligations hereunder. The Employee may not assign or transfer this Agreement or any rights or obligations hereunder, other than to his estate upon his death.

7.8 **Choice of Law.** All questions concerning the construction, validity and interpretation of this Agreement will be governed by the law of the Commonwealth of Pennsylvania, without regard to its rules of conflicts or choice of laws.

7.9 **Indemnification.** The Employee shall be entitled to indemnification to the maximum extent permitted by applicable law and the Company's Bylaws with terms no less favorable than provided to any other Company executive officer and subject to the terms of any separate written indemnification agreement. At all times during the Employee's employment, the Company shall maintain in effect a directors and officers liability insurance policy with the Employee as a covered officer.

7.10 **Resolution of Disputes.** The parties recognize that litigation in federal or state courts or before federal or state administrative agencies of disputes arising out of the Employee's employment with the Company or out of this Agreement, or the Employee's termination of employment or termination of this Agreement, may not be in the best interests of either the Employee or the Company, and may result in unnecessary costs, delays, complexities, and uncertainty. The parties agree that any dispute between the parties arising out of or relating to the negotiation, execution, performance or termination of this Agreement or the Employee's employment, including, but not limited to, any claim arising out of this Agreement, claims under Title VII of the Civil Rights Act of 1964, as amended, the Civil Rights Act of 1991, the Age Discrimination in Employment Act of 1967, the Americans with Disabilities Act of 1990, Section 1981 of the Civil Rights Act of 1966, as amended, the Family Medical Leave Act, the Employee Retirement Income Security Act, and any similar federal, state or local law, statute, regulation, or any common law doctrine, whether that dispute arises during or after employment, shall be settled by binding arbitration conducted before a single arbitrator by Judicial Arbitration and Mediation Services, Inc. ("**JAMS**") or its successor, under the then applicable JAMS rules; *provided however*, that this dispute resolution provision shall not apply to any separate agreements between the parties that do not themselves specify arbitration as an exclusive remedy. The location for the arbitration shall be Philadelphia, Pennsylvania. Any award made by such panel shall be final, binding and conclusive on the parties for all purposes, and judgment upon the award rendered by the arbitrators may be entered in any court having jurisdiction thereof. The arbitrators' fees and expenses and all administrative fees and expenses associated

Exhibit A

Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement

EMPLOYEE CONFIDENTIAL INFORMATION, INVENTIONS, NON-SOLICITATION AND NON-COMPETITION AGREEMENT

In consideration of my employment or continued employment by Verrica Pharmaceuticals Inc., and its subsidiaries, parents, affiliates, successors and assigns (together, "**Company**") and the compensation now and later paid to me and in further consideration of my eligibility for additional severance opportunities under my Amended and Restated Employment Agreement with Company dated January 10, 2020 I hereby enter into this Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement (the "**Agreement**") and agree as follows:

1. CONFIDENTIAL INFORMATION PROTECTIONS.

1.1 Recognition of Company's Rights; Nondisclosure. I understand and acknowledge that my employment by Company creates a relationship of confidence and trust with respect to Company's Confidential Information (as defined below) and that Company has a protectable interest therein. At all times during and after my employment, I will hold in confidence and will not disclose, use, lecture upon or publish any of Company's Confidential Information, except as such disclosure, use or publication may be required in connection with my work for Company, or unless an officer of Company expressly authorizes such disclosure in writing. I will obtain Company's written approval before publishing or submitting for publication any material (written, verbal, or otherwise) that discloses and/or incorporates any Confidential Information. I hereby assign to Verrica Pharmaceuticals Inc. any rights I may have or acquire in such Confidential Information and recognize that all Confidential Information shall be the sole and exclusive property of Verrica Pharmaceuticals Inc. and its assigns. I will take all reasonable precautions to prevent the inadvertent or accidental disclosure of Confidential Information. Notwithstanding the foregoing, pursuant to 18 U.S.C. Section 1833(b), I shall not be held criminally or civilly liable under any Federal or State trade secret law for the disclosure of a trade secret that:

(1) is made in confidence to a Federal, State, or local government official, either directly or indirectly, or to an attorney, and solely for the purpose of reporting or investigating a suspected violation of law; or (2) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

1.2 Confidential Information. The term "Confidential Information" shall mean any and all confidential knowledge, data or information of Company. By way of illustration but not limitation, "**Confidential Information**" includes (a) trade secrets, inventions, mask works, ideas, processes, formulas, software in source or object code versions, data, programs, other works of authorship, know-how, improvements, discoveries, developments, designs and techniques and any other proprietary technology and all Intellectual Property Rights therein (collectively, "**Inventions**"); (b) information regarding research, development, new products, marketing and selling, business plans, budgets and unpublished financial statements, licenses, prices and costs, margins,

discounts, credit terms, pncmg and billing policies, quoting procedures, methods of obtaining business, forecasts, future plans and potential strategies, financial projections and business strategies, operational plans, financing and capital-raising plans, activities and agreements, internal services and operational manuals, methods of conducting Company business, suppliers and supplier information, and purchasing; (c) information regarding customers and potential customers of Company, including customer lists, names, representatives, their needs or desires with respect to the types of products or services offered by Company, proposals, bids, contracts and their contents and parties, the type and quantity of products and services provided or sought to be provided to customers and potential customers of Company and other non-public information relating to customers and potential Customers; (d) information regarding any of Company's business partners and their services, including names; representatives, proposals, bids, contracts and their contents and parties, the type and quantity of products and services received by Company, and other non-public information relating to business partners; (e) information regarding personnel, employee lists, compensation, and employee skills; and (f) any other non-public information which a competitor of Company could use to the competitive disadvantage of Company. Notwithstanding the foregoing, it is understood that, at all such times, I am free to use information which was known to me prior to employment with Company or which is generally known in the trade or industry through no breach of this Agreement or other act or omission by me. Notwithstanding the foregoing or anything to the contrary in this Agreement or any other agreement between Company and me, nothing in this Agreement shall limit my right to discuss my employment or report possible violations of law or regulation with the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, the Securities and Exchange Commission, or other federal government agency or similar state or local agency or to discuss the terms and conditions of my employment with others to the extent expressly permitted by Section 7 of the National Labor Relations Act or to the extent that such disclosure is protected under the applicable provisions of law or regulation, including but not limited to "whistleblower" statutes or other similar provisions that protect such disclosure.

1.3 **Third Party Information.** I understand, in addition, that Company has received and in the future will receive from third parties their confidential and/or proprietary knowledge, data or information ("**Third Party Information**") subject to a duty on Company's part to maintain the confidentiality of such information and to use it only for certain limited purposes. During my employment and thereafter, I will hold Third Party Information in confidence and will not disclose to anyone (other than Company personnel who need to know such information in connection with their work for Company) or use, except in connection with my work for Company, Third Party Information unless expressly authorized by an officer of Company in writing.

1.4 **Term of Nondisclosure Restrictions.** I understand that Confidential Information and Third Party Information is never to be used or disclosed by me, as provided in this Section 1. If a temporal limitation on my obligation not to use or disclose such information is required under applicable law, and the Agreement or its restriction(s) cannot otherwise be enforced, I agree and Company agrees that the two (2) year period after the date my employment ends will be the temporal limitation relevant to the contested restriction, provided, however, that this sentence will not apply to trade secrets protected without temporal limitation under applicable law.

1.5 **No Improper Use of Information of Prior Employers and Others.** During my employment by Company, I will not improperly use or disclose confidential information or trade secrets, if any, of any former employer or any other person to whom I have an obligation of confidentiality, and I will not bring onto the premises of Company any unpublished documents or any property belonging to any former employer or any other person to whom I have an obligation of confidentiality unless consented to in writing by that former employer or person.

2. ASSIGNMENTS OF INVENTIONS.

2.1 **Definitions.** As used in this Agreement, the term "**Intellectual Property Rights**" means all trade secrets, Copyrights, trademarks, mask work rights, patents and other intellectual property rights recognized by the laws of any jurisdiction or country; the term "**Copyright**" means the exclusive legal right to reproduce, perform, display, distribute and make derivative works of a work of authorship (as a literary, musical, or artistic work) recognized by the laws of any jurisdiction or country; and the term "**Moral Rights**" means all paternity, integrity, disclosure, withdrawal, special and any other similar rights recognized by the laws of any jurisdiction or country.

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Excluded Inventions and Other Inventions. Attached hereto as **Exhibit A** is a list describing all existing Inventions, if any, that may relate to Company's business or actual or demonstrably anticipated research or development and that were made by me or acquired by me prior to the commencement of my employment with, and which are not to be assigned to, Company ("**Excluded Inventions**"). If no such list is attached, I represent and agree that it is because I have no rights in any existing Inventions that may relate to Company's business or actual or demonstrably anticipated research or development. For purposes of this Agreement, "**Other Inventions**" means Inventions in which I have or may have an interest, as of the commencement of my employment, other than Company Inventions (defined below) and Excluded Inventions. I acknowledge and agree that if I use any Excluded Inventions or any Other Inventions in the scope of my employment, or if I include any Excluded Inventions or Other Inventions in any product or service of Company, or if my rights in any Excluded Inventions or Other Inventions may block or interfere with, or may otherwise be required for, the exercise by Company of any rights assigned to Company under this Agreement, I will immediately so notify Company in writing. Unless Company and I agree otherwise in writing as to particular Excluded Inventions or Other Inventions, I hereby grant to Company, in such circumstances (whether or not I give Company notice as required above), a non-exclusive, perpetual, transferable, fully-paid and royalty-free, irrevocable and worldwide license, with rights to sublicense through multiple levels of sublicensees, to reproduce, make derivative works of, distribute, publicly perform, and publicly display in any form or medium, whether now known or later developed, make, have made, use, sell, import, offer for sale, and exercise any and all present or future rights in, such Excluded Inventions and Other Inventions. To the extent that any third parties have rights in any such Other Inventions, I hereby represent and warrant that such third party or parties have validly and irrevocably granted to me the right to grant the license stated above.

2.3 **Assignment of Company Inventions.** Inventions assigned to Verrica Pharmaceuticals Inc., or to a third party as directed by Verrica Pharmaceuticals Inc. pursuant to Section 2.6, are referred to in this Agreement as "**Company Inventions.**" Subject to Section 2.4 (Unassigned or Nonassignable Inventions) and except for Excluded Inventions set forth in **Exhibit A** and Other Inventions, I hereby assign to Verrica Pharmaceuticals Inc. all my right, title, and interest in and to any and all Inventions (and all Intellectual Property Rights with respect thereto) made, conceived, reduced to practice, or learned by me, either alone or with others, during the period of my employment by Company. To the extent required by applicable Copyright laws, I agree to assign in the future (when any copyrightable Inventions are first

fixed in a tangible medium of expression) my Copyright rights in and to such Inventions. Any assignment of Company Inventions (and all Intellectual Property Rights with respect thereto) hereunder includes an assignment of all Moral Rights. To the extent such Moral Rights cannot be assigned to Verrica Pharmaceuticals Inc. and to the extent the following is allowed by the laws in any country where Moral Rights exist, I hereby unconditionally and irrevocably waive the enforcement of such Moral Rights, and all claims and causes of action of any kind against Company or related to Company's customers, with respect to such rights. I further acknowledge and agree that neither my successors-in-interest nor legal heirs retain any Moral Rights in any Company Inventions (and any Intellectual Property Rights with respect thereto).

2.4 Unassigned or Nonassignable Inventions. I recognize that this Agreement will not be deemed to require assignment of any Invention that I developed entirely on my own time without using Company's equipment, supplies, facilities, trade secrets or Confidential Information, except for those Inventions that either (i) relate to Company's actual or anticipated business, research or development, or (ii) result from or are connected with work performed by me for Company. In addition, this Agreement does not apply to any Invention which qualifies fully for protection from assignment to Company under any specifically applicable state law, regulation, rule or public policy ("*Specific Inventions Law*").

2.5 Obligation to Keep Company Informed. During the period of my employment and for one (1) year after termination of my employment, I will promptly and fully disclose to Company in writing all Inventions authored, conceived, or reduced to practice by me, either alone or jointly with others. In addition, I will promptly disclose to Company all patent applications filed by me or on my behalf within one (1) year after termination of employment. At the time of each such disclosure, I will advise Company in writing of any Inventions that I believe fully qualify for protection under the provisions of any applicable Specific Inventions Law; and I will at that time provide to Company in writing all evidence necessary to substantiate that belief. Company will keep in confidence and will not use for any purpose or disclose to third parties without my consent any Confidential Information disclosed in writing to Company pursuant to this Agreement relating to Inventions that qualify fully for protection under a Specific Inventions Law. I will preserve the confidentiality of any Invention that does not fully qualify for protection under a Specific Inventions Law.

2.6 Government or Third Party. I agree that, as directed by Company, I will assign to a third party, including without limitation the United States, all my

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right, title, and interest in and to any particular Company Invention.

2.7 Ownership of Work Product.

(a) I acknowledge that all original works of authorship which are made by me (solely or jointly with others) within the scope of my employment and which are protectable by Copyright are "works made for hire," pursuant to United States Copyright Act (17 U.S.C., Section 101).

(b) I agree that Verrica Pharmaceuticals Inc. will exclusively own all work product that is made by me (solely or jointly with others) within the scope of my employment, and I hereby irrevocably and unconditionally assign to Verrica Pharmaceuticals Inc. all right, title, and interest worldwide in and to such work product. I understand and agree that I have no right to publish on, submit for publishing, or use for any publication any work product protected by this Section, except as necessary to perform services for Company.

2.8 Enforcement of Intellectual Property Rights and Assistance. I will assist Company in every proper way to obtain, and from time to time enforce, United States and foreign Intellectual Property Rights and Moral Rights relating to Company Inventions in any and all countries. To that end I will execute, verify and deliver such documents and perform such other acts (including appearances as a witness) as Company may reasonably request for use in applying for, obtaining, perfecting, evidencing, sustaining and enforcing such Intellectual Property Rights and the assignment thereof. In addition, I will execute, verify and deliver assignments of such Intellectual Property Rights to Verrica Pharmaceuticals Inc. or its designee, including the United States or any third party designated by Verrica Pharmaceuticals Inc. My obligation to assist Company with respect to Intellectual Property Rights relating to such Company Inventions in any and all countries will continue beyond the termination of my employment, but Company will compensate me at a reasonable rate after my termination for the time actually spent by me at Company's request on such assistance. In the event Company is unable for any reason, after reasonable effort, to secure my signature on any document needed in connection with the actions specified in this paragraph, I hereby irrevocably designate and appoint Company and its duly authorized officers and agents as my agent and attorney in fact, which appointment is coupled with an interest, to act for and in my behalf to execute, verify and file any such documents and to do all other lawfully permitted acts to further the purposes of the preceding paragraph with the same legal force and effect as if executed by me. I hereby waive and quitclaim to Company any and all claims, of any nature whatsoever, which I now or may hereafter have for infringement of any

Intellectual Property Rights assigned under this Agreement to Verrica Pharmaceuticals Inc.

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2.9 Incorporation of Software Code. I agree that I **will** not incorporate into any Company software or otherwise deliver to Company any software code licensed under the GNU General Public License or Lesser General Public License or any other license that, by its terms, requires or conditions the use or distribution of such code on the disclosure, licensing, or distribution of any source code owned or licensed by Company except in strict compliance with Company's policies regarding the use of such software.

3.RECORDS. I agree to keep and maintain adequate and current records (in the form of notes, sketches, drawings and in any other form that is required by Company) of all Confidential Information developed by me and all Company Inventions made by me during the period of my employment at Company, which records will be available to and remain the sole property of Company at all times.

4. DUTY OF LOYALTY DURING EMPLOYMENT. I agree that during the period of my employment by Company I will not, without Company's express written consent, directly or indirectly engage in any employment or business activity which is directly or indirectly competitive with, or would otherwise conflict with, my employment by Company.

5. NO SOLICITATION OF EMPLOYEES, CONSULTANTS, CONTRACTORS, OR CUSTOMERS OR POTENTIAL CUSTOMERS. I agree that during the period of my employment and for the one (1) year period after the date my employment ends for any reason, including but not limited to voluntary termination by me or involuntary termination by Company, I will not, as an officer, director, employee, consultant, owner, partner, or in any other capacity, either directly or through others, except on behalf of Company:

5.1 solicit, induce, encourage, or participate in soliciting, inducing or encouraging any person known to me to be an employee, consultant, or independent contractor of Company to terminate his or her relationship with Company, even if I did not initiate the discussion or seek out the contact;

5.2 solicit, induce, encourage, or participate in soliciting, inducing, or encouraging any person known to me to be an employee, consultant, or independent contractor of Company to terminate his or her relationship with Company to render services to me or any other person or entity that researches, develops, markets, sells, performs or provides or is preparing to develop, market, sell, perform or provide Conflicting Services (as defined in Section 6 below);

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hire, employ, or engage in a business venture with as partners or owners or other joint capacity, or attempt to hire, employ, or engage in a business venture as partners or owners or other joint capacity, with any person then employed by Company or who has left the employment of Company within the preceding three (3) months to research, develop, market, sell, perform or provide Conflicting Services;

5.4 solicit, induce or attempt to induce any Customer or Potential Customer (as defined below), to terminate, diminish, or materially alter in a manner harmful to Company its relationship with Company;

5.5 solicit or assist in the solicitation of any Customer or Potential Customer to induce or attempt to induce such Customer or Potential Customer to purchase or contract for any Conflicting Services; or

5.6 perform, provide or attempt to perform or provide any Conflicting Services for a Customer or Potential Customer.

The parties agree that for purposes of this Agreement, a "**Customer or Potential Customer**" is any person or entity who or which, at any time during the one (1) year period prior to my contact with such person or entity as described in Sections 5.4-5.6 above if such contact occurs during my employment or, if such contact occurs following the termination of my employment, during the one (1) year period prior to the date my employment with Company ends: (i) contracted for, was billed for, or received from Company any product, service or process with which I worked directly or indirectly during my employment by Company or about which I acquired Confidential Information; or (ii) was in contact with me or in contact with any other employee, owner, or agent of Company, of which contact I was or should have been aware, concerning the sale or purchase of, or contract for, any product, service or process with which I worked directly or indirectly during my employment with Company or about which I acquired Confidential Information; or (iii) was solicited by Company in an effort in which I was involved or of which I was aware.

6. **NON-COMPETE PROVISION.** I agree that for the one (1) year period after the date my employment ends for any reason, including but not limited to voluntary termination by me or involuntary termination by Company, I will not, directly or indirectly, as an officer, director, employee, consultant, owner, partner, or in any other capacity solicit, perform, or provide, or attempt to perform or provide Conflicting Services anywhere in the Restricted Territory (as defined below), nor will I assist another person to solicit, perform or provide or attempt to perform or provide Conflicting Services anywhere in the Restricted Territory.

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The parties agree that for purposes of this Agreement, "**Conflicting Services**" means any product, service, or process or the research and development thereof, of any person or organization other than Company that directly competes with a product, service, or process, including the research and development thereof, of Company with which I worked directly or indirectly during my employment by Company or about which I acquired Confidential Information during my employment by Company.

The parties agree that for purposes of this Agreement, "**Restricted Territory**" means the one hundred (100) mile radius of any of the following locations: (i) any Company business location at which I have worked on a regular or occasional basis during the preceding year; (ii) my home if I work from home on a regular or occasional basis; (iii) any potential business location of Company under active consideration by Company to which I have traveled in connection with the consideration of that location; (iv) the primary business location of a Customer or Potential Customer; or (v) any business location of a Customer or Potential Customer where representatives of the Customer or Potential Customer with whom I have been in contact in the preceding year are based.

7. REASONABLENESS OF RESTRICTIONS.

7.1 I agree that I have read this entire Agreement and understand it. I agree that this Agreement does not prevent me from earning a living or pursuing my career. I agree that the restrictions contained in this Agreement are reasonable, proper, and necessitated by Company's legitimate business interests. I represent and agree that I am entering into this Agreement freely and with knowledge of its contents with the intent to be bound by the Agreement and the restrictions contained in it.

7.2 In the event that a court finds this Agreement, or any of its restrictions, to be ambiguous, unenforceable, or invalid, I and Company agree that the court will read the Agreement as a whole and interpret the restriction(s) at issue to be enforceable and valid to the maximum extent allowed by law.

7.3 If the court declines to enforce this Agreement in the manner provided in subsection 7.2, I and Company agree that this Agreement will be automatically modified to provide Company with the maximum protection of its business interests allowed by law and I agree to be bound by this Agreement as modified.

7.4 If after applying the provisions of subsections 7.2 and 7.3, a court still decides that this Agreement or any of its restrictions is unenforceable for lack of reasonable geographic limitation and the

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Agreement or restriction(s) cannot otherwise be enforced, the parties hereby agree that the fifty (50) mile radius from any location at which I worked for Company on either a regular or occasional basis during the one (1) year immediately preceding termination of my employment with Company shall be the geographic limitation relevant to the contested restriction.

8. NO CONFLICTING AGREEMENT OR OBLIGATION. I represent that my performance of all the terms of this Agreement and as an employee of Company does not and will not breach any agreement to keep in confidence information acquired by me in confidence or in trust prior to my employment by Company. I have not entered into, and I agree I will not enter into, any agreement either written or oral in conflict with this Agreement.

9. RETURN OF COMPANY PROPERTY. When I leave the employ of Company, I will deliver to Company any and all drawings, notes, memoranda, specifications, devices, formulas and documents, together with all copies thereof, and any other material containing or disclosing any Company Inventions, Third Party Information or Confidential Information of Company. I agree that I will not copy, delete, or alter any information contained upon my Company computer or Company equipment before I return it to Company. In addition, if I have used any personal computer, server, or e-mail system to receive, store, review, prepare or transmit any Company information, including but not limited to, Confidential Information, I agree to provide Company with a computer-useable copy of all such Confidential Information and then permanently delete and expunge such Confidential Information from those systems; and I agree to provide Company access to my system as reasonably requested to verify that the necessary copying and/or deletion is completed. I further agree that any property situated on Company's premises and owned by Company, including disks and other storage media, filing cabinets or other work areas, is subject to inspection by Company's personnel at any time with or without notice. Prior to leaving, I will cooperate with Company in attending an exit interview and completing and signing Company's termination statement if required to do so by Company.

10. LEGAL AND EQUITABLE REMEDIES.

10.1 I agree that it may be impossible to assess the damages caused by my violation of this Agreement or any of its terms. I agree that any threatened or actual violation of this Agreement or any of its terms will constitute immediate and irreparable injury to Company and Company will have the right to enforce this Agreement and any of its provisions by injunction, specific performance or other equitable relief, without bond and without prejudice to any other rights and

remedies that Company may have for a breach or threatened breach of this Agreement.

10.2 I agree that if Company is successful in whole or in part in any legal or equitable action against me under this Agreement, Company will be entitled to payment of all costs, including reasonable attorneys' fees, from me.

10.3 In the event Company enforces this Agreement through a court order, I agree that the restrictions of Sections 5 and 6 will remain in effect for a period of twelve (12) months from the effective date of the order enforcing the Agreement.

11. NOTICES. Any notices required or permitted under this Agreement will be given to Company at its headquarters location at the time notice is given, labeled "Attention Chief Executive Officer," and to me at my address as listed on Company payroll, or at such other address as Company or I may designate by written notice to the other. Notice will be effective upon receipt or refusal of delivery. If delivered by certified or registered mail, notice will be considered to have been given five (5) business days after it was mailed, as evidenced by the postmark. If delivered by courier or express mail service, notice will be considered to have been given on the delivery date reflected by the courier or express mail service receipt.

12. PUBLICATION OF THIS AGREEMENT TO SUBSEQUENT EMPLOYER OR BUSINESS ASSOCIATES OF EMPLOYEE.

12.1 If I am offered employment or the opportunity to enter into any business venture as owner, partner, consultant or other capacity while the restrictions described in Sections 5 and 6 of this Agreement are in effect I agree to inform my potential employer, partner, co-owner and/or others involved in managing the business with which I have an opportunity to be associated of my obligations under this Agreement and also agree to provide such person or persons with a copy of this Agreement.

12.2 I agree to inform Company of all employment and business ventures which I enter into while the restrictions described in Sections 5 and 6 of this Agreement are in effect and I also authorize Company to provide copies of this Agreement to my employer, partner, co-owner and/or others involved in managing the business with which I am employed or associated and to make such persons aware of my obligations under this Agreement.

13. GENERAL PROVISIONS.

13.1

7 .

Governing Law; Consent to Personal Jurisdiction. This Agreement will be governed by and construed according to the laws of the Commonwealth of Pennsylvania as such laws are applied to agreements entered into and to be performed entirely within Pennsylvania between Pennsylvania residents. I hereby expressly consent to the personal jurisdiction and venue of the state and federal courts for the county in which Company's principal place of business is located for any lawsuit filed there against me by Company arising from or related to this Agreement.

13.2 Severability. In case any one or more of the provisions, subsections, or sentences contained in this Agreement will, for any reason, be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability will not affect the other provisions of this Agreement, and this Agreement will be construed as if such invalid, illegal or unenforceable provision had never been contained in this Agreement. If moreover, any one or more of the provisions contained in this Agreement will for any reason be held to be excessively broad as to duration, geographical scope, activity or subject, it will be construed by limiting and reducing it, so as to be enforceable to the extent compatible with the applicable law as it will then appear.

13.3 Successors and Assigns. This Agreement is for my benefit and the benefit of Company, its successors, assigns, parent corporations, subsidiaries, affiliates, and purchasers, and will be binding upon my heirs, executors, administrators and other legal representatives.

13.4 Survival. The provisions of this Agreement will survive the termination of my employment, regardless of the reason, and the assignment of this Agreement by Company to any successor in interest or other assignee.

13.5 Employment At-Will. I agree and understand that nothing in this Agreement will change my at-will employment status or confer any right with respect to continuation of employment by Company, nor will it interfere in any way with my right or Company's right to terminate my employment at any time, with or without cause or advance notice.

13.6 Waiver. No waiver by Company of any breach of this Agreement will be a waiver of any preceding or succeeding breach. No waiver by Company of any right under this Agreement will be construed as a waiver of any other right. Company will not be required to give notice to enforce strict adherence to all terms of this Agreement.

13.7 Export. I agree not to export, reexport, or transfer, directly or indirectly, any U.S. technical data acquired from Company or any products utilizing such data, in violation of the United States export laws or regulations.

13.8 Advice of Counsel. I **ACKNOWLEDGE THAT, IN EXECUTING THIS AGREEMENT, I HAVE HAD THE OPPORTUNITY TO SEEK THE ADVICE OF INDEPENDENT LEGAL COUNSEL, AND I HAVE READ AND UNDERSTOOD ALL OF THE TERMS AND PROVISIONS OF THIS AGREEMENT. THIS AGREEMENT WILL NOT BE CONSTRUED AGAINST ANY PARTY BY REASON OF THE DRAFTING OR PREPARATION OF THIS AGREEMENT.**

13.9 Entire Agreement. The obligations pursuant to Sections 1 and 2 (except Subsections 2.4 and

2.7(a)) of this Agreement will apply to any time during which I was previously engaged, or am in the future engaged, by Company as a consultant if no other agreement governs nondisclosure and assignment of Inventions during such period. This Agreement is the final, complete and exclusive agreement of the parties with respect to the subject matter of this Agreement and supersedes and merges all prior discussions between us; provided, however, prior to the execution of this Agreement, if Company and I were parties to any agreement regarding the subject matter hereof, that agreement will be superseded by this Agreement prospectively only. No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, will be effective unless in writing and signed by the party to be charged. Any subsequent change or changes in my duties, salary or compensation will not affect the validity or scope of this Agreement.

This Agreement will be effective as of January 10, 2020.

I HAVE READ THIS AGREEMENT CAREFULLY AND UNDERSTAND ITS TERMS. I HAVE COMPLETELY FILLED OUT EXHIBIT A TO THIS AGREEMENT.

/s/ **Ted White**

(Signature) White
Name:

ACCEPTED AND AGREED TO:

VERRICA PHARMACEUTICALS INC.

/s/ **A. Brian Davis**
A. Brian Davis

Name: Title: Chief Financial Officer

8.

EXHIBIT A

LIST OF EXCLUDED INVENTIONS

I. Except as listed in Section 2 below, the following is a complete list of all inventions or improvements relevant to the subject matter of my employment by Verrica Pharmaceuticals Inc. that have been made or conceived or first reduced to practice by me alone or jointly with others prior to my engagement by Verrica Pharmaceuticals Inc.:

D No inventions or improvements.

D See below:

Title

Identif ing Number or Brief Description

0 Additional sheets attached.

2. Due to a prior confidentiality agreement, I cannot complete the disclosure under Section 1 above with respect to inventions or improvements generally listed below, the intellectual property rights and duty of confidentiality with respect to which I owe to the following party(ies):

Invention or Improvement

Party(ies)

Relationship

1.

2.

3.

D Additional sheets attached.

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A-1.

Exhibit B Release Agreement

This Release Agreement ("**Release**" or "**Agreement**") is made by and between Ted White ("you") and Verrica Pharmaceuticals Inc. (the "**Company**"). A copy of this Release is an attachment to the Amended and Restated Employment Agreement between the Company and you dated January 10, 2020 (the "**Employment Agreement**"). Capitalized terms not defined in this Agreement carry the definition found in the Employment Agreement.

1. Severance Payments; Other Payments.

a. In consideration for your execution, return and non-revocation of this Release on or after your Separation Date, the Company will provide you with the following "**Severance Benefits**": [to include payment of specific severance payments and COBRA benefits to be paid].

b. In addition, regardless of whether you sign this Agreement, the Company affirms that it will pay the following on the next regularly scheduled date on which payroll is run, as required under Section 6 of the Employment Agreement,: [to include payment of all salary, business expense reimbursements and other amounts due to employee that are not part of the severance].

2. Compliance with Section 409A. The Severance Benefits offered to you by the Company are payable in reliance on Treasury Regulation Section 1.409A-1(b)(9) and the short term deferral exemption in Treasury Regulation Section 1.409A-1(b)(4). For purposes of Code Section 409A, your right to receive any installment payments (whether pay in lieu of notice, Severance Benefits, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment shall at all times be considered a separate and distinct payment. All payments and benefits are subject to applicable withholdings and deductions.

3. Release. In exchange for the Severance Benefits and other consideration, to which you would not otherwise be entitled, and except as otherwise set forth in this Agreement, you, on behalf of yourself and, to the extent permitted by law, on behalf of your spouse, heirs, executors, administrators, assigns, insurers, attorneys and other persons or entities, acting or purporting to act on your behalf (collectively, the "**Employee Parties**"), hereby generally and completely release, acquit and forever discharge the Company, its parents and subsidiaries, and its and their officers, directors, managers, partners, agents, representatives, employees, attorneys, shareholders, predecessors, successors, assigns, insurers and affiliates (the "**Company Parties**") of and from any and all claims, liabilities, demands, contentions, actions, causes of action, suits, costs, expenses, attorneys' fees, damages, indemnities, debts, judgments, levies, executions and obligations of every kind and nature, in law, equity, or otherwise, both known and unknown, suspected and unsuspected, disclosed and undisclosed, arising out of or in any way related to my employment with the Company and separation therefrom, arising at any time prior to and including the execution date of this Agreement, including but not limited to: all such claims and demands directly or indirectly arising out of or in any way connected with your employment with the Company or the termination of that employment; claims or demands related to salary, bonuses, commissions, vacation pay, the right to receive additional grants of stock, stock options or other ownership interests in the Company, fringe benefits, expense reimbursements, severance pay, or any other form of compensation; claims pursuant to any federal, state or local law, statute, or cause of action; tort law; or contract law (individually a "**Claim**" and collectively "**Claims**"). The Claims you are releasing and waiving in this Agreement include, but are not limited to, any and all Claims that any of the Company Parties:

has violated its personnel policies, handbooks, contracts of employment, or covenants of good faith and fair dealing;

has discriminated against you on the basis of age, race, color, sex (including sexual harassment), national origin, ancestry, disability, religion, sexual orientation, marital status, parental status, source of income, entitlement to benefits, any union activities or other protected category in violation of any local, state or federal law, constitution, ordinance, or regulation, including but not

limited to: the Age Discrimination in Employment Act, as amended ("**ADEA**"); Title VII of the Civil Rights Act of 1964, as amended; the Civil Rights Act of 1991; 42 U.S.C. § 1981, as amended; the Equal Pay Act; the Americans With Disabilities Act; the Genetic Information Nondiscrimination Act; the Family and Medical Leave Act; the Pennsylvania Human Relations Act; the Pennsylvania Whistleblower Law; the Pennsylvania Equal Pay Law; the Employee Retirement Income Security Act; the Employee Polygraph Protection Act; the Worker Adjustment and Retraining Notification Act; the Older Workers Benefit Protection Act; the anti-retaliation provisions of the Sarbanes-Oxley Act, or any other federal or state law regarding whistleblower retaliation; the Lilly Ledbetter Fair Pay Act; the Uniformed Services Employment and Reemployment Rights Act; the Fair Credit Reporting Act; and the National Labor Relations Act; and

has violated any statute, public policy or common law (including, but not limited to, Claims for retaliatory discharge; negligent hiring, retention or supervision; defamation; intentional or negligent infliction of emotional distress and/or mental anguish; intentional interference with contract; negligence; detrimental reliance; loss of consortium to you or any member of your family and/or promissory estoppel).

Notwithstanding the foregoing, other than events expressly contemplated by this Agreement you do not waive or release rights or Claims that may arise: (i) from events that occur after the date this Release is executed; (ii) that relate to a breach of this Agreement; (iii) that relate to any existing ownership interest in the Company or vested equity awards as of the date this Release is executed; (iv) that relate to my vested benefits or existing rights under any Company benefit plan or any plan or agreement related to equity ownership in the Company that arise after this Release is executed; (v) in connection with any right of indemnification you may have for any liabilities arising from your actions within the course and scope of your employment with the Company or within the course and scope of your role as an officer of the Company; and (vi) any Claims which cannot be waived by law, including, without limitation, any rights you may have under applicable workers' compensation laws. Nothing in this Agreement shall prevent you from filing, cooperating with, or participating in any proceeding or investigation before the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, the Occupational Safety and Health Administration, the Securities and Exchange Commission or any other federal government agency, or similar state or local agency ("**Government Agencies**"), or exercising any rights pursuant to Section 7 of the National Labor Relations Act. You further understand this Agreement does not limit your ability to voluntarily communicate with any Government Agencies or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency, including providing documents or other information, without notice to the Company. While this Agreement does not limit your right to receive an award for information provided to the Securities and Exchange Commission, you understand and agree that, you are otherwise waiving, to the fullest extent permitted by law, any and all rights you may have to individual relief based on any Claims that you have released and any rights you have waived by signing this Agreement. If any Claim is not subject to release, to the extent permitted by law, you waive any right or ability to be a class or collective action representative or to otherwise participate in any putative or certified class, collective or multi-party action or proceeding based on such a Claim in which any of the Company Parties is a party.

4. Your Acknowledgments and Affirmations. You also acknowledge and agree that (i) the consideration given to you in exchange for the waiver and release in this Agreement is in addition to anything of value to which you were already entitled, and (ii) that you have been paid for all time worked, have received all the leave, leaves of absence and leave benefits and protections for which you are eligible, and have not suffered any on-the-job injury for which you have not already filed a Claim. You affirm that all of the decisions of the Company Parties regarding your pay and benefits through the date of your execution of this Agreement were not discriminatory based on age, disability, race, color, sex, religion, national origin or any other classification protected by law. You affirm that you have not filed or caused to be filed, and are not presently a party to, a Claim against any of the Company Parties. You further affirm that you have no known workplace injuries or occupational diseases. You acknowledge and affirm that you have not been retaliated against for reporting any allegation of corporate fraud or other wrongdoing by any of the Company Parties, or for exercising any rights protected by law, including any rights protected by the Fair Labor Standards Act, the Family Medical Leave Act or any related statute or local leave or disability accommodation laws, or any applicable state workers' compensation law. In addition, you acknowledge that you are knowingly and voluntarily waiving and releasing any rights you may have under the

ADEA ("ADEA Waiver"). You also acknowledge that the consideration given for the ADEA Waiver is in addition to anything of value to which you were already entitled. You further acknowledge that you have been advised by this writing, as required by the ADEA, that: (a) your release and waiver herein does not apply to any rights or claims that arise after the date you sign this Agreement; (b) you should consult with an attorney prior to signing this Agreement; (c) you have twenty-one (21) days to consider this Agreement (although you may choose to voluntarily sign it sooner); (d) you have seven (7) days following the date you sign this Agreement to revoke it (by sending written revocation directly to Christopher G. Hayes, General Counsel for the Company; and (e) the Agreement will not be effective until the date upon which the revocation period has expired unexercised, which will be the eighth (8~~th~~) day after you sign this Agreement.

5. **Return of Company Property.** By the Separation Date, you agree to return to the Company all Company documents (and all copies thereof) and other Company property that you have had in your possession at any time, including, but not limited to, Company files, notes, drawings, records, business plans and forecasts, financial information, specifications, computer-recorded information, tangible property (including, but not limited to, computers), credit cards, entry cards, identification badges and keys; and, any materials of any kind that contain or embody any proprietary or confidential information of the Company (and all reproductions thereof). Please coordinate return of Company property with Christopher G. Hayes, General Counsel for the Company. **Receipt of the Severance Benefits described in Section 1 of this Agreement is expressly conditioned upon return of all Company property.**

6. **Confidential Information, Non-Competition and Non-Solicitation Obligations.** Both during and after your employment you acknowledge your continuing obligations under your Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement not to use or disclose any confidential or proprietary information of the Company and comply with your post-employment non-competition and non solicitation restrictions. The Company acknowledges that you will not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that: (A) is made (i) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. In addition, in the event that you file a lawsuit for retaliation by the Company for reporting a suspected violation of law, you may disclose the trade secret to your attorney and use the trade secret information in the court proceeding, if you: (A) file any document containing the trade secret under seal; and (B) do not disclose the trade secret, except pursuant to court order.

7. **Confidentiality.** The provisions of this Agreement will be held in strictest confidence by you and will not be publicized or disclosed in any manner whatsoever; *provided, however*, that: (a) you may disclose this Agreement to your immediate family; (b) you may disclose this Agreement in confidence to your attorney, accountant, auditor, tax preparer, and financial advisor; and (c) you may disclose this Agreement insofar as such disclosure may be required by law. Notwithstanding the foregoing, nothing in this Agreement shall limit your right to discuss your employment with the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, other federal government agency or similar state or local agency or to discuss the terms and conditions of your employment with others to the extent expressly permitted by Section 7 of the National Labor Relations Act.

8. **Non-Disparagement.** You and the Company agree not to disparage each other, and the other's attorneys, directors, managers, partners, employees, agents and affiliates, in any manner likely to be harmful to them or their business, business reputation or personal reputation; provided that you and the Company will respond accurately and fully to any question, inquiry or request for information when required by legal process. For purposes of this Section 8, the obligations of the Company shall apply only to the senior management team and the members of the Board of Directors. Notwithstanding the foregoing, nothing in this Agreement shall limit your right to voluntarily communicate with the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, other federal government agency or similar state or local agency or to discuss the terms and conditions of your employment with others to the extent expressly permitted by Section 7 of the National Labor Relations Act.

9. **No Admission.** This Agreement does not constitute an admission by you or by the Company of any wrongful action or violation of any federal, state, or local statute, or common law rights, including those relating

to the provisions of any law or statute concerning employment actions, or of any other possible or claimed violation of law or rights.

10. Breach. You agree that upon any material breach of this Agreement you will forfeit all amounts paid or owing to you under this Agreement. Further, you acknowledge that it may be impossible to assess the damages caused by your violation of the terms of Sections 5, 6, 7 and 8 of this Agreement and further agree that any threatened or actual violation or breach of those Sections of this Agreement will constitute immediate and irreparable injury to the Company. You therefore agree that, in addition to any and all other damages and remedies available to the Company upon your breach of this Agreement, the Company shall be entitled to an injunction to prevent you from violating or breaching this Agreement.

11. Miscellaneous. This Agreement is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. This Agreement may not be modified or amended except in a writing signed by both you and a duly authorized officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure to the benefit of both you and the Company, their heirs, successors and assigns. If any provision of this Agreement is determined to be invalid or unenforceable, in whole or in part, this determination will not affect any other provision of this Agreement and the provision in question will be modified by the court so as to be rendered enforceable. This Agreement will be deemed to have been entered into and will be construed and enforced in accordance with the laws of the Commonwealth of Pennsylvania as applied to contracts made and to be performed entirely within the Commonwealth of Pennsylvania.

VERRICA PHARMACEUTICALS INC.

By: _____
Name:
Title:

Ted White

213679529

AMENDED AND RESTATED EMPLOYMENT AGREEMENT

This **AMENDED AND RESTATED EMPLOYMENT AGREEMENT** (the "**Agreement**"), by and between Verrica Pharmaceuticals Inc., a Delaware corporation (the "**Company**") and Joseph Bonaccorso (the "**Employee**"), amends, restates, and supersedes in its entirety the Employment Agreement between the Company and the Employee that was effective January 6, 2018, as amended January 29, 2018 (such January 6, 2018 and January 29, 2018 agreements together, the "**Prior Agreement**"). This Agreement is entered into effective January 10, 2020 (the "**Effective Date**"). Company and Employee are each herein referred to individually as a "**Party**," or collectively as the "**Parties**").

Whereas, the Company desires to continue to employ the Employee in the capacity of full-time Chief Commercial Officer pursuant to the terms of this Agreement and, in connection therewith, to compensate the Employee for Employee's personal services to the Company; and

Whereas, the Employee wishes to continue to be employed by the Company and provide personal services to the Company in return for certain compensation.

Accordingly, in consideration of the mutual promises and covenants contained herein, the parties agree to the following:

1. EMPLOYMENT BY THE COMPANY.

1.1 At-Will Employment. Employee shall continue to be employed by the Company on an "at-will" basis, meaning either the Company or Employee may terminate Employee's employment at any time, with or without cause or advanced notice. Any contrary representations that may have been made to Employee shall be superseded by this Agreement. This Agreement shall constitute the full and complete agreement between Employee and the Company on the "at-will" nature of Employee's employment with the Company, which may be changed only in an express written agreement signed by Employee and a duly authorized officer of the Company. Employee's rights to any compensation following a termination shall be only as set forth in Section 6.

1.2 Position. Subject to the terms set forth herein, the Company agrees to continue to employ Employee, initially, in the position of Chief Commercial Officer and Employee hereby accepts such continued employment. During the term of Employee's employment with the Company, Employee will continue to devote Employee's best efforts and substantially all of Employee's business time and attention to the business of the Company.

1.3 Duties. Employee will continue to report to the Chief Executive Officer ("**CEO**") of the Company, performing such duties as are normally associated with his position and such duties as are assigned to him from time to time, subject to the oversight and direction of the CEO and the Company's Board of Directors (the "**Board**"). Employee shall perform his duties under this Agreement principally out of the Company's office in Berkley Heights, NJ or such other location as assigned. In addition, the Employee shall make such business trips to such places as may be necessary or advisable for the efficient operations of the Company.

1.4 Company Policies and Benefits. The employment relationship between the parties shall remain subject to the Company's personnel policies and procedures as they may be interpreted, adopted, revised or deleted from time to time in the Company's sole discretion. The Employee remains eligible to participate on the same basis as similarly situated employees in the Company's benefit plans and paid time off policies, in all cases, as in effect from time to time during his employment. All matters of eligibility for coverage or benefits under any benefit plan shall be determined in accordance with the provisions of such plan. The Company reserves the right to change, alter, or terminate any benefit plan in its sole discretion. Notwithstanding the foregoing, in the event that the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

2. COMPENSATION.

2.1 Salary. Employee shall receive for Employee's services to be rendered hereunder an initial annualized base salary of \$374,500 per year, subject to review and adjustment from time to time by the Company in its sole discretion, payable subject to standard federal and state payroll withholding requirements in accordance with Company's standard payroll practices ("**Base Salary**").

2.2 Bonus.

(a) **During Employment.** Employee shall be eligible to earn an annual performance bonus with a target amount equal to 40% (the "**Target Percentage**") of his Base Salary ("**Annual Bonus**"). The Annual Bonus will be based upon the Board's assessment of the Employee's performance and the Company's attainment of targeted goals as set by the Board in its sole discretion. The Annual Bonus, if any, will be subject to applicable payroll deductions and withholdings. Following the close of each calendar year, the Board will determine whether the Employee has earned the Annual Bonus, and the amount of any Annual Bonus, which can be above or below the Target Percentage, based on the set criteria. No amount of the Annual Bonus is guaranteed, and the Employee must be an employee in good standing on the Annual Bonus payment date to be eligible to receive an Annual Bonus; no partial or prorated bonuses will be provided. The Annual Bonus, if earned, will be paid no later than March 15 of the calendar year immediately following the applicable calendar year for which the Annual Bonus is being measured. The Employee's eligibility for an Annual Bonus is subject to change in the discretion of the Board (or any authorized committee thereof).

(b) **Upon Termination.** In the event Employee leaves the employ of the Company for any reason prior to payment of any bonus, he is not eligible for such bonus, prorated or otherwise.

2.3 Future Equity Awards. Employee remains eligible to be considered for future equity awards as may be determined by the Board or a committee of the Board in its discretion in accordance with the terms of any applicable equity plan or arrangement that may be in effect from time to time.

2.4 Expense Reimbursement. The Company will reimburse Employee for all reasonable, documented business expenses incurred in connection with his services hereunder, in accordance with the Company's business expense reimbursement policies and procedures as may be in effect from time to time.

3. **CONFIDENTIAL INFORMATION, INVENTIONS, NON-COMPETITION AND NON- SOLICITATION OBLIGATIONS.** As a condition of continued employment, and in consideration for the benefits provided under this Agreement that were not provided under the Prior Agreement, Employee agrees to execute and abide by an **Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement** attached as **Exhibit A** (the "**Confidential Information Agreement**"), which may be amended by the parties from time to time without regard to this Agreement. The Confidential Information Agreement contains provisions that are intended by the parties to survive and do survive termination or expiration of this Agreement.

4. **OUTSIDE ACTIVITIES.** Except with the prior written consent of the Company's Board, Employee will not, while employed by the Company, undertake or engage in any other employment, occupation or business enterprise that would interfere with Employee's responsibilities and the performance of Employee's duties hereunder except for (i) reasonable time devoted to volunteer services for or on behalf of such religious, educational, non-profit and/or other charitable organization as Employee may wish to serve; (ii) reasonable time devoted to activities in the non-profit and business communities consistent with Employee's duties; (iii) reasonable time devoted to service on boards of directors of companies that are not competitive with the Company, do not otherwise present a conflict of interest and would not otherwise interfere with Employee's responsibilities and the performance of Employee's duties hereunder, subject to the prior written approval of the Board (which approval shall not be unreasonably withheld); and (iv) such other activities that would not interfere with Employee's responsibilities and the performance of Employee's duties hereunder as may be specifically approved by the Board (which approval shall not be unreasonably withheld). This restriction shall not, however, preclude the Employee from owning less than one percent (1%) of the total outstanding shares of a publicly traded company.

5. **No CONFLICT WITH EXISTING OBLIGATIONS.** Employee represents that Employee's performance of all the terms of this Agreement and as an Employee of the Company do not and will not breach any agreement or obligation of any kind made prior to Employee's employment by the Company, including agreements or obligations Employee may have with prior employers or entities for which Employee has provided services. Employee has not entered into, and Employee agrees that Employee will not enter into, any agreement or obligation, either written or oral, in conflict herewith.

6. **TERMINATION OF EMPLOYMENT.** The parties acknowledge that Employee's employment relationship with the Company continues to be at-will. Either Employee or the Company may terminate the employment relationship at any time, with or without Cause. The provisions in this Section govern the amount of compensation, if any, to be provided to Employee upon termination of employment and do not alter this at-will status.

6.1 Termination by the Company Without Cause (not in Connection with a Change in Control).

(a) The Company shall have the right to terminate Employee's employment with the Company pursuant to this Section 6.1 at any time without "Cause" (as defined in Section 6.2(a) below) by giving notice as described in Section 6.7 of this Agreement.

A termination pursuant to Section 6.6 below is not a termination without "Cause" for purposes of receiving the benefits described in this Section 6.1.

(b) In the event Employee's employment is terminated without Cause at any time except during the Change in Control Measurement Period (as defined in Section 6.4 below), then provided that the Employee executes and does not revoke a separation agreement that includes a general release substantially in the form attached hereto as **Exhibit B** (the "**Release**"), and subject to Section 6.1(c) (the date that the Release becomes effective and may no longer be revoked by the Employee is referred to as the "**Release Date**"), then Employee shall be eligible for the following "**Non-CIC Severance Benefits**":

(i) the Company shall pay to Employee an amount equal to Employee's then current Base Salary for the Severance Period (as defined below), less applicable withholdings and deductions, in installments in accordance with the Company's ordinary payroll practices commencing on the Company's first regular payroll date that is more than sixty (60) days following the Separation Date (as defined below), and shall be for any accrued Base Salary for the sixty (60) day period plus the period from the sixtieth (60th) day until the regular payroll date, if applicable, and all salary continuation payments thereafter, if any, shall be made on the Company's regular payroll dates; and

(ii) if the Employee timely elects continued coverage under COBRA for himself and his covered dependents under the Company's group health plans following such termination, then the Employee will be entitled to the following COBRA benefits: the Company shall pay the COBRA premiums necessary to continue the Employee's and his covered dependents' health insurance coverage in effect for himself (and his covered dependents) on the termination date until the earliest of (x) a number of months following the termination date equal to the Severance Period; (y) the date when the Employee becomes eligible for health insurance coverage in connection with new employment or self-employment; or (iii) the date the Employee ceases to be eligible for COBRA continuation coverage for any reason, including plan termination (such period from the termination date through the earlier of (i)-(iii), the "**Non-CIC COBRA Payment Period**"). Notwithstanding the foregoing, if at any time the Company determines that its payment of COBRA premiums on the Employee's behalf would result in a violation of applicable law (including but not limited to the 2010 Patient Protection and Affordable Care Act, as amended by the 2010 Health Care and Education Reconciliation Act), then in lieu of paying COBRA premiums pursuant to this Section, the Company shall pay the Employee on the last day of each remaining month of the Non-CIC COBRA Payment Period, a fully taxable cash payment equal to the COBRA premium for such month, subject to applicable tax withholding (such amount, the "**Special Severance Payment**"), such Special Severance Payment to be made without regard to the Employee's payment of COBRA premiums and without regard to the expiration of the COBRA period prior to the end of the Non-CIC COBRA Payment Period. Nothing in this Agreement shall deprive the Employee of his rights under COBRA or BRISA for benefits under plans and policies arising under his employment by the Company.

(c) Employee shall not receive the Non-CIC Severance Benefits pursuant to Section 6.1(b), or the CIC Severance Benefits (as defined below) pursuant to Section 6.4(a), unless he executes the Release within the consideration period specified therein, which shall in no event be more than sixty (60) days, and until the Release becomes effective and can

no longer be revoked by Employee under its terms. Employee's ability to receive benefits pursuant to Section 6.1(b) or Section 6.4(a) is further conditioned upon his: returning all Company property; complying with his post-termination obligations under this Agreement and the Confidential Information Agreement; and complying with the Release including without limitation any non-disparagement and confidentiality provisions contained therein.

(d) The benefits provided to Employee pursuant to this Section 6.1 are in lieu of, and not in addition to, any benefits to which Employee may otherwise be entitled under any Company severance plan, policy or program. For avoidance of doubt, Employee shall not be eligible for both CIC Severance Benefits and Non-CIC Severance Benefits.

(e) The damages caused by the termination of Employee's employment without Cause would be difficult to ascertain; therefore, the severance for which Employee is eligible pursuant to Section 6.1(b) above in exchange for the Release is agreed to by the parties as liquidated damages, to serve as full compensation, and not a penalty.

(f) For purposes of this Agreement, "**Severance Period**" shall mean (i) zero (0) months in the event a termination under this Section 6.1 or under Section 6.3 (an "**Involuntary Termination**") occurs on or before February 7, 2019, (ii) six (6) months in the event an Involuntary Termination occurs after February 7, 2019 and on or before February 7, 2020, and (iii) twelve (12) months in the event an Involuntary Termination occurs after February 7, 2020.

6.2 Termination by the Company for Cause. Subject to Section 6.2(b) below, the Company shall have the right to terminate Employee's employment with the Company at any time for Cause by giving notice as described in this Section 6.2 and in Section 6.6 of this Agreement.

(a) "**Cause**" for termination shall mean the occurrence of any of the following: (i) Employee's conviction of any felony or any crime involving fraud or dishonesty; (ii) Employee's participation in a fraud, act of dishonesty or other act of gross misconduct that adversely affects the Company; (iii) conduct by Employee that demonstrates Employee's gross unfitness to serve under circumstances that materially and adversely affect the Company; (iv) Employee's violation of any statutory or fiduciary duty, or duty of loyalty, owed to the Company; (v) Employee's breach of any material term of any contract between such Employee and the Company; and/or (vi) Employee's serious violation of a material Company policy. Whether a termination is for Cause shall be decided by the Board in its sole and exclusive judgment and discretion. Prior to termination for Cause pursuant to each event listed in (iii) and (iv) above, the Company shall give the Employee notice of such event(s), which notice shall specify in reasonable detail the circumstances constituting Cause, and an opportunity to explain the circumstances. Prior to any termination for Cause pursuant to each event listed in (v) and (vi) above, to the extent such event(s) is (are) capable of being cured by Employee, (A) the Company shall give the Employee notice of such event(s), which notice shall specify in reasonable detail the circumstances constituting Cause, and an opportunity to cure, and (B) there shall be no Cause with respect to any such event(s) if the Board determines in good faith that such events have been cured by Employee within fifteen (15) days after the delivery of such notice.

(b) In the event Employee's employment is terminated at any time for Cause, Employee will not receive the Non-CIC Severance Benefits described in Section 6.1(b), the CIC Severance Benefits described in Section 6.4(a), or any other severance compensation or benefit, except that, pursuant to the Company's standard payroll policies, the Company shall pay to Employee the accrued but unpaid salary of Employee through the date of termination, together with all compensation and benefits payable to Employee based on his participation in any compensation or benefit plan, program or arrangement through the date of termination.

6.3 Resignation by the Employee With Good Reason (not in Connection with a Change in Control).

(a) Employee may resign from Employee's employment with the Company for Good Reason by giving notice following the end of the Cure Period (as defined in this Section). For purposes of this Agreement, "**Good Reason**" for the Employee to terminate his employment hereunder shall mean any of following actions are taken by the Company without Employee's prior written consent: (i) a material reduction by the Company of Employee's Base Salary as initially set forth herein or as the same may be increased from time to time, provided, however, that if such reduction occurs in connection with a Company-wide decrease in executive team compensation, such reduction shall not constitute Good Reason; (ii) a material breach of this Agreement by the Company; (iii) the relocation of Employee's principal place of employment, without Employee's consent, by fifty (50) or more miles from his then current principal place of employment immediately prior to such relocation; or (iv) a material reduction in Employee's title, duties, authority, or responsibilities relative to Employee's title, duties, authority, or responsibilities in effect immediately prior to such reduction; *provided, however*, that, any such termination by Employee shall only be deemed for Good Reason pursuant to this definition if: (1) Employee gives the Company written notice of his intent to terminate for Good Reason within thirty (30) days following the occurrence of the condition(s) that he believes constitute(s) Good Reason, which notice shall describe such condition(s); (2) the Company fails to remedy such condition(s) within thirty (30) days following receipt of the written notice (the "**Cure Period**"); and (3) Employee voluntarily terminates his employment within thirty (30) days following the end of the Cure Period.

(b) In the event Employee resigns from employment for Good Reason at any time except during the Change in Control Measurement Period, then provided that the Employee executes and does not revoke the Release and subject to Section 6.1 (c), then the Company shall pay to Employee the Non-CIC Severance Benefits described in Section 6.1(b).

6.4 Termination by the Company without Cause or Resignation by Employee for Good Reason (in connection with a Change in Control).

(a) In the event that Employee's employment is terminated without Cause or Employee resigns for Good Reason in either case within twelve (12) months following or one (1) month prior to the effective date of a Change in Control ("**Change in Control Measurement Period**") of the Company, then provided that the Employee executes and does not revoke the Release and subject to Employee's compliance with the requirements of Section 6.1(c), then Employee will be eligible for the following "**CIC Severance Benefits**:"

(i) the Company shall pay to Employee an amount equal to Employee's then current Base Salary for twelve (12) months, less applicable withholdings and

deductions, in installments in accordance with the Company's ordinary payroll practices commencing on the Company's first regular payroll date that is more than sixty (60) days following the Separation Date, and shall be for any accrued Base Salary for the sixty (60) day period plus the period from the sixtieth (60th) day until the regular payroll date, if applicable, and all salary continuation payments thereafter, shall be made on the Company's regular payroll dates; and

(ii) the Company will pay a cash severance benefit equal to the Employee's Annual Bonus paid at the Target Percentage for the year in which Employee's Separation Date occurs. Such cash severance benefit will be paid in a single lump sum cash payment on the Company's first regular payroll date that is more than sixty (60) days following the Separation Date.

(iii) if the Employee timely elects continued coverage under COBRA for himself and his covered dependents under the Company's group health plans following such termination, then the Employee will be entitled to the following COBRA benefits: the Company shall pay the COBRA premiums necessary to continue the Employee's and his covered dependents' health insurance coverage in effect for himself (and his covered dependents) on the termination date until the earliest of (x) twelve (12) months following the termination date; (y) the date when the Employee becomes eligible for health insurance coverage in connection with new employment or self-employment; or (iii) the date the Employee ceases to be eligible for COBRA continuation coverage for any reason, including plan termination (such period from the termination date through the earlier of (i)-(iii), the "**CIC COBRA Payment Period**"). Notwithstanding the foregoing, if at any time the Company determines that its payment of COBRA premiums on the Employee's behalf would result in a violation of applicable law (including but not limited to the 2010 Patient Protection and Affordable Care Act, as amended by the 2010 Health Care and Education Reconciliation Act), then in lieu of paying COBRA premiums pursuant to this Section, the Company shall pay the Employee on the last day of each remaining month of the CIC COBRA Payment Period the Special Severance Payment, such Special Severance Payment to be made without regard to the Employee's payment of COBRA premiums and without regard to the expiration of the COBRA period prior to the end of the CIC COBRA Payment Period. Nothing in this Agreement shall deprive the Employee of his rights under COBRA or ERISA for benefits under plans and policies arising under his employment by the Company.

(iv) With regard to Employee's equity awards: (i) The vesting and exercisability of all outstanding time-based vesting equity awards and performance-based vesting equity awards (together, the "**Equity Awards**") that are held by Employee on such date shall be accelerated in full as of the later of the effective date of such Change in Control and Employee's termination date, and (ii) any reacquisition or repurchase rights held by the Company in respect of common stock issued pursuant to any other Equity Awards granted Employee by the Company shall lapse in full as of the later of the effective date of such Change in Control and Employee's termination date. For purposes of determining the number of shares that will vest pursuant to this provision with respect to any performance-based vesting equity awards for which the performance period has not ended and that has multiple vesting levels depending upon the level of performance, vesting acceleration with respect to any ongoing performance period(s) shall occur with respect to the number of shares subject to the award as if the applicable performance criteria had been attained at a 100% level or, if greater, based on

actual performance as of the later of the effective date of the Change in Control and Employee's termination date. Notwithstanding the foregoing, this Section 6.4(a)(iv) shall not apply to common stock issued under or held in any plan sponsored by the Company or its affiliates that is intended to be qualified under Section 401(a) of the Internal Revenue Code of 1986, as amended. Notwithstanding any contrary terms governing the Equity Awards or common stock held by Employee, if a Change in Control has not occurred prior to Employee's termination date, no forfeiture of the Equity Awards will occur and no reacquisition or repurchase rights will be exercised by the Company for one month following the termination date, to enable the application of this paragraph if a Change in Control does occur during that month.

(b) The CIC Severance Benefits provided to Employee pursuant to this Section 6.4 are in lieu of, and not in addition to, any benefits to which Employee may otherwise be entitled under any Company severance plan, policy or program.

(c) Any damages caused by the termination of Employee's employment without Cause during the Change in Control Measurement Period would be difficult to ascertain; therefore, the CIC Severance Benefits for which Employee is eligible pursuant to Section 6.4(a) above in exchange for the Release are agreed to by the parties as liquidated damages, to serve as full compensation, and not a penalty.

6.5 Resignation by the Employee Without Good Reason.

(a) Employee may resign from Employee's employment with the Company at any time by giving notice as described in Section 6.7.

(b) In the event Employee resigns from Employee's employment with the Company other than for Good Reason, Employee will not receive the Non-CIC Severance Benefits, the CIC-Severance Benefits, or any other severance compensation or benefit, except that, pursuant to the Company's standard payroll policies, the Company shall pay to Employee the accrued but unpaid salary of Employee through the date of resignation, together with all compensation and benefits payable to Employee through the date of resignation under any compensation or benefit plan, program or arrangement during such period and Employee shall be eligible for any benefit continuation or conversion rights provided by the provisions of a benefit plan or by law.

6.6 Termination by Virtue of Death or Disability of the Employee.

(a) In the event of Employee's death while employed pursuant to this Agreement, all obligations of the parties hereunder shall terminate immediately, and the Company shall, pursuant to the Company's standard payroll policies, pay to the Employee's legal representatives Employee's accrued but unpaid salary through the date of death together with all compensation and benefits payable to Employee based on his participation in any compensation or benefit plan, program or arrangement through the date of termination.

(b) Subject to applicable state and federal law, the Company shall at all times have the right, upon written notice to the Employee, to terminate this Agreement based on the Employee's Disability (as defined below). Termination by the Company of the Employee's employment based on "**Disability**" shall mean termination because the Employee is unable due to a physical or mental condition to perform the essential functions of his position

with or without reasonable accommodation for six (6) months in the aggregate during any twelve (12) month period or based on the written certification by two licensed physicians of the likely continuation of such condition for such period, provided that such condition meets the definition of a disability for coverage under the terms of Company's then-current long-term disability insurance plan. This definition shall be interpreted and applied consistent with the Americans with Disabilities Act, the Family and Medical Leave Act, and other applicable law. In the event Employee's employment is terminated based on the Employee's Disability, Employee will not receive the Non-CIC Severance Benefits, the CIC Severance Benefits, or any other severance compensation or benefit, except that, pursuant to the Company's standard payroll policies, the Company shall pay to Employee the accrued but unpaid salary of Employee through the date of termination, together with all compensation and benefits payable to Employee based on his participation in any compensation or benefit plan, program or arrangement through the date of termination.

6.7 Notice; Effective Date of Termination.

(a) Termination of Employee's employment (the "*Separation Date*") pursuant to this Agreement shall be effective as follows:

(i) ten (10) days after the Company has provided Employee with written notice of Employee's termination without Cause under Section 6.1 or 6.4;

(ii) For a termination for Cause: (aa) under Section 6.2(a)(i) or 6.2(a)(ii), immediately upon provision by the Company of written notice of the reasons to Employee; (bb) under Section 6.2(a)(iii) or 6.2(a)(iv), following the required written notice to Employee and expiration of the period during which Employee may explain; (cc) under Section 6.2(a)(v) or 6.2(a)(vi), following the required written notice to Employee and expiration of the 15-day cure period, if Employee has not cured;

(iii) immediately upon the Employee's death;

(iv) thirty (30) days after the Company gives notice to Employee of Employee's termination on account of Employee's Disability under Section 6.6, unless the Company specifies a later Separation Date, in which case, termination shall be effective as of such later Separation Date, *provided* that Employee has not returned to the full time performance of Employee's duties prior to such date;

(v) on the date specified in Employee's written notice of Employee's resignation for Good Reason, provided it is within thirty (30) days after the Cure Period has ended and the Company has failed to remedy any of the reasons for Good Reason set forth in Employee's initial notice under Section 6.3(a); or

(vi) ten (10) days after the Employee gives written notice to the Company of Employee's resignation, *provided* that the Company may set a Separation Date at any time between the date of notice and the date of resignation, in which case the Employee's resignation shall be effective as of such other date. Employee will receive compensation through the Separation Date.

(b) In the event notice of a termination under subsections (a)(iii) and (iv) is given orally, at the other party's request, the party giving notice must provide written confirmation of such notice within five (5) business days of the request in compliance with the requirement of Section 7.1 below. In the event of a termination for Cause, written confirmation shall specify the subsection(s) of the definition of Cause relied on to support the decision to terminate.

6.8 **Cooperation With Company After Termination of Employment.** Following termination of Employee's employment for any reason, Employee shall reasonably cooperate with the Company in all matters relating to the winding up of Employee's pending work including, but not limited to, any litigation in which the Company is involved, and the orderly transfer of any such pending work to such other Employees as may be designated by the Company.

6.9 **Application of Section 409A.** Notwithstanding anything to the contrary set forth herein, any payments and benefits provided under this Agreement that constitute "deferred compensation" within the meaning of Section 409A of the Internal Revenue Code of 1986, as amended ("**Code**") and the regulations and other guidance thereunder and any state law of similar effect (collectively, "**Section 409A**") shall not commence in connection with Employee's termination of employment unless and until Employee has also incurred a "separation from service" (as such term is defined in Treasury Regulation Section 1.409A-1(h)) ("**Separation From Service**"), unless the Company reasonably determines that such amounts may be provided to Employee without causing Employee to incur the additional 20% tax under Section 409A. It is intended that each installment of severance pay provided for in this Agreement is a separate "payment" for purposes of Treasury Regulation Section 1.409A-2(b)(2)(i). For the avoidance of doubt, it is intended that severance payments set forth in this Agreement satisfy, to the greatest extent possible, the exceptions from the application of Section 409A provided under Treasury Regulation Sections 1.409A-1(b)(4), 1.409A-1(b)(5), and 1.409A-1(b)(9). If the Company (or, if applicable, the successor entity thereto) determines that any payments or benefits constitute "deferred compensation" under Section 409A and Employee is, on the termination of service, a "specified employee" of the Company or any successor entity thereto, as such term is defined in Section 409A(a)(2)(B)(i) of the Code, then, solely to the extent necessary to avoid the incurrence of the adverse personal tax consequences under Section 409A, the timing of the payments and benefits shall be delayed until the earlier to occur of: (a) the date that is six months and one day after Employee's Separation From Service, or (b) the date of Employee's death (such applicable date, the "**Specified Employee Initial Payment Date**"). On the Specified Employee Initial Payment Date, the Company (or the successor entity thereto, as applicable) shall (i) pay to Employee a lump sum amount equal to the sum of the payments and benefits that Employee would otherwise have received through the Specified Employee Initial Payment Date if the commencement of the payment of such amounts had not been so delayed pursuant to this Section and (ii) commence paying the balance of the payments and benefits in accordance with the applicable payment schedules set forth in this Agreement. All reimbursements provided under this Agreement shall be subject to the following requirements:

(i) the amount of in-kind benefits provided or reimbursable expenses incurred in one taxable year shall not affect the in-kind benefits to be provided or the expenses eligible for reimbursement in any other taxable year, (ii) all reimbursements shall be paid as soon as administratively practicable, but in no event shall any reimbursement be paid after the last day of the taxable year following the taxable year in which the expense was incurred, and (iii) the right to

reimbursement or in-kind benefits is not subject to liquidation or exchange for any other benefit. It is intended that all payments and benefits under this Agreement shall either comply with or be exempt from the requirements of Section 409A, and any ambiguity contained herein shall be interpreted in such manner so as to avoid adverse personal tax consequences under Section 409A. Notwithstanding the foregoing, the Company shall in no event be obligated to indemnify the Employee for any taxes or interest that may be assessed by the Internal Revenue Service pursuant to Section 409A of the Code to payments made pursuant to this Agreement.

7. **GENERAL PROVISIONS.**

7.1 **Notices.** Any notices required hereunder to be in writing shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by electronic mail, telex or confirmed facsimile if sent during normal business hours of the recipient, and if not, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the Company at its primary office location and to Employee at Employee's address as listed on the Company payroll, or at such other address as the Company or the Employee may designate by ten (10) days advance written notice to the other.

7.2 **Severability.** Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provisions had never been contained herein.

7.3 **Waiver.** If either party should waive any breach of any provisions of this Agreement, such party shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement.

7.4 **Complete Agreement.** This Agreement constitutes the entire agreement between Employee and the Company with regard to the subject matter hereof. This Agreement is the complete, final, and exclusive embodiment of their agreement with regard to this subject matter and supersedes any prior oral discussions or written communications and agreements, including the Prior Agreement. This Agreement is entered into without reliance on any promise or representation other than those expressly contained herein, and it cannot be modified or amended except in writing signed by Employee and an authorized officer of the Company. The parties have entered into a separate Confidential Information Agreement and have or may enter into separate agreement related to stock option awards. These separate agreements govern other aspects of the relationship between the parties, have or may have provisions that survive termination of the Employee's employment under this Agreement, may be amended or superseded by the parties without regard to this Agreement and are enforceable according to their terms without regard to the enforcement provision of this Agreement.

7.5 **Counterparts.** This Agreement may be executed in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement.

7.6 **Headings.** The headings of the sections hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

7.7 **Successors and Assigns.** The Company shall assign this Agreement and its rights and obligations hereunder in whole, but not in part, to any Company or other entity with or into which the Company may hereafter merge or consolidate or to which the Company may transfer all or substantially all of its assets, if in any such case said Company or other entity shall by operation of law or expressly in writing assume all obligations of the Company hereunder as fully as if it had been originally made a party hereto, but may not otherwise assign this Agreement or its rights and obligations hereunder. The Employee may not assign or transfer this Agreement or any rights or obligations hereunder, other than to his estate upon his death.

7.8 **Choice of Law.** All questions concerning the construction, validity and interpretation of this Agreement will be governed by the law of the Commonwealth of Pennsylvania, without regard to its rules of conflicts or choice of laws.

7.9 **Indemnification.** The Employee shall be entitled to indemnification to the maximum extent permitted by applicable law and the Company's Bylaws with terms no less favorable than provided to any other Company executive officer and subject to the terms of any separate written indemnification agreement. At all times during the Employee's employment, the Company shall maintain in effect a directors and officers liability insurance policy with the Employee as a covered officer.

7.10 **Resolution of Disputes.** The parties recognize that litigation in federal or state courts or before federal or state administrative agencies of disputes arising out of the Employee's employment with the Company or out of this Agreement, or the Employee's termination of employment or termination of this Agreement, may not be in the best interests of either the Employee or the Company, and may result in unnecessary costs, delays, complexities, and uncertainty. The parties agree that any dispute between the parties arising out of or relating to the negotiation, execution, performance or termination of this Agreement or the Employee's employment, including, but not limited to, any claim arising out of this Agreement, claims under Title VII of the Civil Rights Act of 1964, as amended, the Civil Rights Act of 1991, the Age Discrimination in Employment Act of 1967, the Americans with Disabilities Act of 1990, Section 1981 of the Civil Rights Act of 1966, as amended, the Family Medical Leave Act, the Employee Retirement Income Security Act, and any similar federal, state or local law, statute, regulation, or any common law doctrine, whether that dispute arises during or after employment, shall be settled by binding arbitration conducted before a single arbitrator by Judicial Arbitration and Mediation Services, Inc. ("**JAMS**") or its successor, under the then applicable JAMS rules; *provided however*, that this dispute resolution provision shall not apply to any separate agreements between the parties that do not themselves specify arbitration as an exclusive remedy. The location for the arbitration shall be Philadelphia, Pennsylvania. Any award made by such panel shall be final, binding and conclusive on the parties for all purposes, and judgment upon the award rendered by the arbitrators may be entered in any court having jurisdiction thereof. The arbitrators' fees and expenses and all administrative fees and expenses associated

with the filing of the arbitration shall be borne by the Company; *provided however*, that at the Employee's option, Employee may voluntarily pay up to one-half the costs and fees, for which Employee shall be reimbursed by the Company. The parties acknowledge and agree that their obligations to arbitrate under this Section survive the termination of this Agreement and continue after the termination of the employment relationship between Employee and the Company. The parties each further agree that the arbitration provisions of this Agreement shall provide each party with its **exclusive remedy**, and each party expressly waives any right it might have to seek redress in any other forum, except as otherwise expressly provided in this Agreement. By election arbitration as the means for final settlement of all claims, **the parties hereby waive their respective rights to, and agree not to, sue each other in any action in a Federal, State or local court with respect to such claims, but may seek to enforce in court an arbitration award rendered pursuant to this Agreement. The parties specifically agree to waive their respective rights to a trial by jury, and further agree that no demand, request or motion will be made for trial by jury.**

[SIGNATURES TO FOLLOW ON NEXT PAGE]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Employment Agreement on the day and year first written above.

COMPANY:

Verrica Pharmaceuticals Inc.

By : **/s/ Ted White**

Name: Ted White

Title:

Executive Officer

President and Chief

EMPLOYEE:

/s/ Joseph Bonaccorso

Joseph Bonaccorso

Exhibit A

Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement

EMPLOYEE CONFIDENTIAL INFORMATION, INVENTIONS, NON-SOLICITATION
AND NON-COMPETITION AGREEMENT

In consideration of my employment or continued employment by Verrica Pharmaceuticals Inc., and its subsidiaries, parents, affiliates, successors and assigns (together, "**Company**") and the compensation now and later paid to me and in further consideration of my eligibility for additional severance opportunities under my Amended and Restated Employment Agreement with Company dated January 10, 2020, I hereby enter into this Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement (the "**Agreement**") and agree as follows:

1. CONFIDENTIAL INFORMATION PROTECTIONS.**1.1 Recognition of Company's Rights; Nondisclosure.**

I understand and acknowledge that my employment by Company creates a relationship of confidence and trust with respect to Company's Confidential Information (as defined below) and that Company has a protectable interest therein. At all times during and after my employment, I will hold in confidence and will not disclose, use, lecture upon or publish any of Company's Confidential Information, except as such disclosure, use or publication may be required in connection with my work for Company, or unless an officer of Company expressly authorizes such disclosure in writing. I will obtain Company's written approval before publishing or submitting for publication any material (written, verbal, or otherwise) that discloses and/or incorporates any Confidential Information. I hereby assign to Verrica Pharmaceuticals Inc. any rights I may have or acquire in such Confidential Information and recognize that all Confidential Information shall be the sole and exclusive property of Verrica Pharmaceuticals Inc. and its assigns. I will take all reasonable precautions to prevent the inadvertent or accidental disclosure of Confidential Information. Notwithstanding the foregoing, pursuant to 18 U.S.C. Section 1833(b), I shall not be held criminally or civilly liable under any Federal or State trade secret law for the disclosure of a trade secret that:

(1) is made in confidence to a Federal, State, or local government official, either directly or indirectly, or to an attorney, and solely for the purpose of reporting or investigating a suspected violation of law; or (2) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

1.2 Confidential Information.

The term "Confidential Information" shall mean any and all confidential knowledge, data or information of Company. By way of illustration but not limitation, "**Confidential Information**" includes (a) trade secrets, inventions, mask works, ideas, processes, formulas, software in source or object code versions, data, programs, other works of authorship, know-how, improvements, discoveries, developments, designs and techniques and any other proprietary technology and all Intellectual Property Rights therein (collectively, "**Inventions**"); (b) information regarding research, development, new products, marketing and selling, business plans, budgets and unpublished financial statements, licenses, prices and costs, margins,

discounts, credit terms, pricing and billing policies, quoting procedures, methods of obtaining business, forecasts, future plans and potential strategies, financial projections and business strategies, operational plans, financing and capital-raising plans, activities and agreements, internal services and operational manuals, methods of conducting Company business, suppliers and supplier information, and purchasing; (c) information regarding customers and potential customers of Company, including customer lists, names, representatives, their needs or desires with respect to the types of products or services offered by Company, proposals, bids, contracts and their contents and parties, the type and quantity of products and services provided or sought to be provided to customers and potential customers of Company and other non-public information relating to customers and potential Customers; (d) information regarding any of Company's business partners and their services, including names; representatives, proposals, bids, contracts and their contents and parties, the type and quantity of products and services received by Company, and other non-public information relating to business partners; (e) information regarding personnel, employee lists, compensation, and employee skills; and (f) any other non-public information which a competitor of Company could use to the competitive disadvantage of Company. Notwithstanding the foregoing, it is understood that, at all such times, I am free to use information which was known to me prior to employment with Company or which is generally known in the trade or industry through no breach of this Agreement or other act or omission by me. Notwithstanding the foregoing or anything to the contrary in this Agreement or any other agreement between Company and me, nothing in this Agreement shall limit my right to discuss my employment or report possible violations of law or regulation with the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, the Securities and Exchange Commission, or other federal government agency or similar state or local agency or to discuss the terms and conditions of my employment with others to the extent expressly permitted by Section 7 of the National Labor Relations Act or to the extent that such disclosure is protected under the applicable provisions of law or regulation, including but not limited to "whistleblower" statutes or other similar provisions that protect such disclosure.

1.3

Third Party Information.

I understand, in addition, that Company has received and in the future will receive from third parties their confidential and/or proprietary knowledge, data or information ("**Third Party Information**") subject to a duty on Company's part to maintain the confidentiality of such information and to use it only for certain limited purposes. During my employment and thereafter, I will hold Third Party Information in confidence and will not disclose to anyone (other than Company personnel who need to know such information in connection with their work for Company) or use, except in connection with my work for Company, Third Party Information unless expressly authorized by an officer of Company in writing.

1.4

Term of Nondisclosure Restrictions.

I understand that Confidential Information and Third Party Information is never to be used or disclosed by me, as provided in this Section 1. If a temporal limitation on my obligation not to use or disclose such information is required under applicable law, and the Agreement or its restriction(s) cannot otherwise be enforced, I agree and Company agrees that the two (2) year period after the date my employment ends will be the temporal limitation relevant to the contested restriction, provided, however, that this sentence will not apply to trade secrets protected without temporal limitation under applicable law.

1.5

No Improper Use of Information of Prior Employers and Others.

During my employment by Company, I will not improperly use or disclose confidential information or trade secrets, if any, of any former employer or any other person to whom I have an obligation of confidentiality, and I will not bring onto the premises of Company any unpublished documents or any property belonging to any former employer or any other person to whom I have an obligation of confidentiality unless consented to in writing by that former employer or person.

2. ASSIGNMENTS OF INVENTIONS.

2.1

Definitions.

As used in this Agreement, the term "**Intellectual Property Rights**" means all trade secrets, Copyrights, trademarks, mask work rights, patents and other intellectual property rights recognized by the laws of any jurisdiction or country; the term "**Copyright**" means the exclusive legal right to reproduce, perform, display, distribute and make derivative works of a work of authorship (as a literary, musical, or artistic work) recognized by the laws of any jurisdiction or country; and the term "**Moral Rights**" means all paternity, integrity, disclosure, withdrawal, special and any other similar rights recognized by the laws of any jurisdiction or country.

2.2

2.

Excluded Inventions and Other Inventions. Attached hereto as **Exhibit A** is a list describing all existing Inventions, if any, that may relate to Company's business or actual or demonstrably anticipated research or development and that were made by me or acquired by me prior to the commencement of my employment with, and which are not to be assigned to, Company ("**Excluded Inventions**"). If no such list is attached, I represent and agree that it is because I have no rights in any existing Inventions that may relate to Company's business or actual or demonstrably anticipated research or development. For purposes of this Agreement, "**Other Inventions**" means Inventions in which I have or may have an interest, as of the commencement of my employment, other than Company Inventions (defined below) and Excluded Inventions. I acknowledge and agree that if I use any Excluded Inventions or any Other Inventions in the scope of my employment, or if I include any Excluded Inventions or Other Inventions in any product or service of Company, or if my rights in any Excluded Inventions or Other Inventions may block or interfere with, or may otherwise be required for, the exercise by Company of any rights assigned to Company under this Agreement, I will immediately so notify Company in writing. Unless Company and I agree otherwise in writing as to particular Excluded Inventions or Other Inventions, I hereby grant to Company, in such circumstances (whether or not I give Company notice as required above), a non-exclusive, perpetual, transferable, fully-paid and royalty-free, irrevocable and worldwide license, with rights to sublicense through multiple levels of sublicensees, to reproduce, make derivative works of, distribute, publicly perform, and publicly display in any form or medium, whether now known or later developed, make, have made, use, sell, import, offer for sale, and exercise any and all present or future rights in, such Excluded Inventions and Other Inventions. To the extent that any third parties have rights in any such Other Inventions, I hereby represent and warrant that such third party or parties have validly and irrevocably granted to me the right to grant the license stated above.

2.3

Assignment of Company Inventions.

Inventions assigned to Verrica Pharmaceuticals Inc., or to a third party as directed by Verrica Pharmaceuticals Inc. pursuant to Section 2.6, are referred to in this Agreement as "**Company Inventions**." Subject to Section 2.4 (Unassigned or Nonassignable Inventions) and except for Excluded Inventions set forth in **Exhibit A** and Other Inventions, I hereby assign to Verrica Pharmaceuticals Inc. all my right, title, and interest in and to any and all Inventions (and all Intellectual Property Rights with respect thereto) made, conceived, reduced to practice, or learned by me, either alone or with others, during the period of my employment by Company. To the extent required by applicable Copyright laws, I agree to assign in the future (when any copyrightable Inventions are first

fixed in a tangible medium of expression) my Copyright rights in and to such Inventions. Any assignment of Company Inventions (and all Intellectual Property Rights with respect thereto) hereunder includes an assignment of all Moral Rights. To the extent such Moral Rights cannot be assigned to Verrica Pharmaceuticals Inc. and to the extent the following is allowed by the laws in any country where Moral Rights exist, I hereby unconditionally and irrevocably waive the enforcement of such Moral Rights, and all claims and causes of action of any kind against Company or related to Company's customers, with respect to such rights. I further acknowledge and agree that neither my successors-in-interest nor legal heirs retain any Moral Rights in any Company Inventions (and any Intellectual Property Rights with respect thereto).

2.4 Unassigned or Nonassignable Inventions. I recognize that this Agreement will not be deemed to require assignment of any Invention that I developed entirely on my own time without using Company's equipment, supplies, facilities, trade secrets or Confidential Information, except for those Inventions that either (i) relate to Company's actual or anticipated business, research or development, or (ii) result from or are connected with work performed by me for Company. In addition, this Agreement does not apply to any Invention which qualifies fully for protection from assignment to Company under New Jersey Statutes Annotated § 34: 1 B-265 ("*New Jersey Inventions Law*").

2.5 Obligation to Keep Company Informed. During the period of my employment and for one (1) year after termination of my employment, I will promptly and fully disclose to Company in writing all Inventions authored, conceived, or reduced to practice by me, either alone or jointly with others. In addition, I will promptly disclose to Company all patent applications filed by me or on my behalf within one (1) year after termination of employment. At the time of each such disclosure, I will advise Company in writing of any Inventions that I believe fully qualify for protection under the provisions of the New Jersey Inventions Law; and I will at that time provide to Company in writing all evidence necessary to substantiate that belief. Company will keep in confidence and will not use for any purpose or disclose to third parties without my consent any Confidential Information disclosed in writing to Company pursuant to this Agreement relating to Inventions that qualify fully for protection under the New Jersey Inventions Law. I will preserve the confidentiality of any Invention that does not fully qualify for protection under the New Jersey Inventions Law.

2.6 Government or Third Party. I agree that, as directed by Company, I will assign to a third party, including without limitation the United States, all my right, title, and interest in and to any particular Company Invention.

2.7

3.

Ownership of Work Product.

(a) I acknowledge that all original works of authorship which are made by me (solely or jointly with others) within the scope of my employment and which are protectable by Copyright are "works made for hire," pursuant to United States Copyright Act (17 U.S.C., Section 101).

(b) I agree that Verrica Pharmaceuticals Inc. will exclusively own all work product that is made by me (solely or jointly with others) within the scope of my employment, and I hereby irrevocably and unconditionally assign to Verrica Pharmaceuticals Inc. all right, title, and interest worldwide in and to such work product. I understand and agree that I have no right to publish on, submit for publishing, or use for any publication any work product protected by this Section, except as necessary to perform services for Company.

2.8 Enforcement of Intellectual Property Rights and Assistance. I will assist Company in every proper way to obtain, and from time to time enforce, United States and foreign Intellectual Property Rights and Moral Rights relating to Company Inventions in any and all countries. To that end I will execute, verify and deliver such documents and perform such other acts (including appearances as a witness) as Company may reasonably request for use in applying for, obtaining, perfecting, evidencing, sustaining and enforcing such Intellectual Property Rights and the assignment thereof. In addition, I will execute, verify and deliver assignments of such Intellectual Property Rights to Verrica Pharmaceuticals Inc. or its designee, including the United States or any third party designated by Verrica Pharmaceuticals Inc. My obligation to assist Company with respect to Intellectual Property Rights relating to such Company Inventions in any and all countries will continue beyond the termination of my employment, but Company will compensate me at a reasonable rate after my termination for the time actually spent by me at Company's request on such assistance. In the event Company is unable for any reason, after reasonable effort, to secure my signature on any document needed in connection with the actions specified in this paragraph, I hereby irrevocably designate and appoint Company and its duly authorized officers and agents as my agent and attorney in fact, which appointment is coupled with an interest, to act for and in my behalf to execute, verify and file any such documents and to do all other lawfully permitted acts to further the purposes of the preceding paragraph with the same legal force and effect as if executed by me. I hereby waive and quitclaim to Company any and all claims, of any nature whatsoever, which I now or may hereafter have for infringement of any Intellectual Property Rights assigned under this Agreement to Verrica Pharmaceuticals Inc.

2.9 Incorporation of Software Code. I agree that I will not incorporate into any Company software or otherwise deliver to Company any software code licensed under the GNU General Public License or Lesser General Public License or any other license that, by its terms, requires or conditions the use or distribution of such code on the disclosure, licensing, or distribution of any source code owned or licensed by Company except in strict compliance with Company's policies regarding the use of such software.

3.RECORDS. I agree to keep and maintain adequate and current records (in the form of notes, sketches, drawings and in any other form that is required by Company) of all Confidential Information developed by me and all Company Inventions made by me during the period of my employment at Company, which records will be available to and remain the sole property of Company at all times.

4. DUTY OF LOYALTY DURING EMPLOYMENT. I agree that during the period of my employment by Company I will not, without Company's express written consent, directly or indirectly engage in any employment or business activity which is directly or indirectly competitive with, or would otherwise conflict with, my employment by Company.

5.NO SOLICITATION OF EMPLOYEES, CONSULTANTS, CONTRACTORS, OR CUSTOMERS OR POTENTIAL CUSTOMERS. I agree that during the period of my employment and for the one (1) year period after the date my employment ends for any reason, including but not limited to voluntary termination by me or involuntary termination by Company, I will not, as an officer, director, employee, consultant, owner, partner, or in any other capacity, either directly or through others, except on behalf of Company:

5.1 solicit, induce, encourage, or participate in soliciting, inducing or encouraging any person known to me to be an employee, consultant, or independent contractor of Company to terminate his or her relationship with Company, even if I did not initiate the discussion or seek out the contact;

5.2 solicit, induce, encourage, or participate in soliciting, inducing, or encouraging any person known to me to be an employee, consultant, or independent contractor of Company to terminate his or her relationship with Company to render services to me or any other person or entity that researches, develops, markets, sells, performs or provides or is preparing to develop, market, sell, perform or provide Conflicting Services (as defined in Section 6 below);

4.

5.3 hire, employ, or engage in a business venture with as partners or owners or other joint capacity, or attempt to hire, employ, or engage in a business venture as partners or owners or other joint capacity, with any person then employed by Company or who has left the employment of Company within the preceding three (3) months to research, develop, market, sell, perform or provide Conflicting Services;

5.4 solicit, induce or attempt to induce any Customer or Potential Customer (as defined below), to terminate, diminish, or materially alter in a manner harmful to Company its relationship with Company;

5.5 solicit or assist in the solicitation of any Customer or Potential Customer to induce or attempt to induce such Customer or Potential Customer to purchase or contract for any Conflicting Services; or

5.6 perform, provide or attempt to perform or provide any Conflicting Services for a Customer or Potential Customer.

The parties agree that for purposes of this Agreement, a "**Customer or Potential Customer**" is any person or entity who or which, at any time during the one (1) year period prior to my contact with such person or entity as described in Sections 5.4-5.6 above if such contact occurs during my employment or, if such contact occurs following the termination of my employment, during the one (1) year period prior to the date my employment with Company ends: (i) contracted for, was billed for, or received from Company any product, service or process with which I worked directly or indirectly during my employment by Company or about which I acquired Confidential Information; or (ii) was in contact with me or in contact with any other employee, owner, or agent of Company, of which contact I was or should have been aware, concerning the sale or purchase of, or contract for, any product, service or process with which I worked directly or indirectly during my employment with Company or about which I acquired Confidential Information; or (iii) was solicited by Company in an effort in which I was involved or of which I was aware.

6. NON-COMPETE PROVISION. I agree that for the one (1) year period after the date my employment ends for any reason, including but not limited to voluntary termination by me or involuntary termination by Company, I will not, directly or indirectly, as an officer, director, employee, consultant, owner, partner, or in any other capacity solicit, perform, or provide, or attempt to perform or provide Conflicting Services anywhere in the Restricted Territory (as defined below), nor will I assist another person to solicit, perform or provide or attempt to perform or provide Conflicting Services anywhere in the Restricted Territory.

The parties agree that for purposes of this Agreement, "**Conflicting Services**" means any product, service, or process or the research and development thereof, of any person or organization other than Company that directly competes with a product, service, or process, including the research and development thereof, of Company with which I worked directly or indirectly during my employment by Company or about which I acquired Confidential Information during my employment by Company.

The parties agree that for purposes of this Agreement, "**Restricted Territory**" means the one hundred (100) mile radius of any of the following locations: (i) any Company business location at which I have worked on a regular or occasional basis during the preceding year; (ii) my home if I work from home on a regular or occasional basis; (iii) any potential business location of Company under active consideration by Company to which I have traveled in connection with the consideration of that location; (iv) the primary business location of a Customer or Potential Customer; or (v) any business location of a Customer or Potential Customer where representatives of the Customer or Potential Customer with whom I have been in contact in the preceding year are based.

7. REASONABLENESS OF RESTRICTIONS.

7.1 I agree that I have read this entire Agreement and understand it. I agree that this Agreement does not prevent me from earning a living or pursuing my career. I agree that the restrictions contained in this Agreement are reasonable, proper, and necessitated by Company's legitimate business interests. I represent and agree that I am entering into this Agreement freely and with knowledge of its contents with the intent to be bound by the Agreement and the restrictions contained in it.

7.2 In the event that a court finds this Agreement, or any of its restrictions, to be ambiguous, unenforceable, or invalid, I and Company agree that the court will read the Agreement as a whole and interpret the restriction(s) at issue to be enforceable and valid to the maximum extent allowed by law.

7.3 If the court declines to enforce this Agreement in the manner provided in subsection 7.2, I and Company agree that this Agreement will be automatically modified to provide Company with the maximum protection of its business interests allowed by law and I agree to be bound by this Agreement as modified.

7.4 If after applying the provisions of subsections 7.2 and 7.3, a court still decides that this Agreement or any of its restrictions is unenforceable for lack of reasonable geographic limitation and the

Agreement or restriction(s) cannot otherwise be enforced, the parties hereby agree that the fifty (50) mile radius from any location at which I worked for Company on either a regular or occasional basis during the one (1) year immediately preceding termination of my employment with Company shall be the geographic limitation relevant to the contested restriction.

8. NO CONFLICTING AGREEMENT OR OBLIGATION. represent that my performance of all the terms of this Agreement and as an employee of Company does not and will not breach any agreement to keep in confidence information acquired by me in confidence or in trust prior to my employment by Company. I have not entered into, and I agree I will not enter into, any agreement either written or oral in conflict with this Agreement.

9. RETURN OF COMPANY PROPERTY. When I leave the employ of Company, I will deliver to Company any and all drawings, notes, memoranda, specifications, devices, formulas and documents, together with all copies thereof, and any other material containing or disclosing any Company Inventions, Third Party Information or Confidential Information of Company. I agree that I will not copy, delete, or alter any information contained upon my Company computer or Company equipment before I return it to Company. In addition, if I have used any personal computer, server, or e-mail system to receive, store, review, prepare or transmit any Company information, including but not limited to, Confidential Information, I agree to provide Company with a computer-useable copy of all such Confidential Information and then permanently delete and expunge such Confidential Information from those systems; and I agree to provide Company access to my system as reasonably requested to verify that the necessary copying and/or deletion is completed. I further agree that any property situated on Company's premises and owned by Company, including disks and other storage media, filing cabinets or other work areas, is subject to inspection by Company's personnel at any time with or without notice. Prior to leaving, I will cooperate with Company in attending an exit interview and completing and signing Company's termination statement if required to do so by Company.

10. LEGAL AND EQUITABLE REMEDIES.

10.1 I agree that it may be impossible to assess the damages caused by my violation of this Agreement or any of its terms. I agree that any threatened or actual violation of this Agreement or any of its terms will constitute immediate and irreparable injury to Company and Company will have the right to enforce this Agreement and any of its provisions by injunction, specific performance or other equitable relief, without bond and without prejudice to any other rights and

remedies that Company may have for a breach or threatened breach of this Agreement.

10.2 I agree that if Company is successful in whole or in part in any legal or equitable action against me under this Agreement, Company will be entitled to payment of all costs, including reasonable attorneys' fees, from me.

10.3 In the event Company enforces this Agreement through a court order, I agree that the restrictions of Sections 5 and 6 will remain in effect for a period of twelve (12) months from the effective date of the order enforcing the Agreement.

11. NOTICES. Any notices required or permitted under this Agreement will be given to Company at its headquarters location at the time notice is given, labeled "Attention Chief Executive Officer," and to me at my address as listed on Company payroll, or at such other address as Company or I may designate by written notice to the other. Notice will be effective upon receipt or refusal of delivery. If delivered by certified or registered mail, notice will be considered to have been given five (5) business days after it was mailed, as evidenced by the postmark. If delivered by courier or express mail service, notice will be considered to have been given on the delivery date reflected by the courier or express mail service receipt.

12. PUBLICATION OF THIS AGREEMENT TO SUBSEQUENT EMPLOYER OR BUSINESS ASSOCIATES OF EMPLOYEE.

12.1 If I am offered employment or the opportunity to enter into any business venture as owner, partner, consultant or other capacity while the restrictions described in Sections 5 and 6 of this Agreement are in effect I agree to inform my potential employer, partner, co-owner and/or others involved in managing the business with which I have an opportunity to be associated of my obligations under this Agreement and also agree to provide such person or persons with a copy of this Agreement.

12.2 I agree to inform Company of all employment and business ventures which I enter into while the restrictions described in Sections 5 and 6 of this Agreement are in effect and I also authorize Company to provide copies of this Agreement to my employer, partner, co-owner and/or others involved in managing the business with which I am employed or associated and to make such persons aware of my obligations under this Agreement.

13. GENERAL PROVISIONS.

13.1

Governing Law; Consent to Personal Jurisdiction. This Agreement will be governed by and construed according to the laws of the State of New Jersey as such laws are applied to agreements entered into and to be performed entirely within New Jersey between New Jersey residents. I hereby expressly consent to the personal jurisdiction and venue of the state and federal courts for the county in which Company's principal place of business is located for any lawsuit filed there against me by Company arising from or related to this Agreement.

13.2 Severability. In case any one or more of the provisions, subsections, or sentences contained in this Agreement will, for any reason, be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability will not affect the other provisions of this Agreement, and this Agreement will be construed as if such invalid, illegal or unenforceable provision had never been contained in this Agreement. If moreover, any one or more of the provisions contained in this Agreement will for any reason be held to be excessively broad as to duration, geographical scope, activity or subject, it will be construed by limiting and reducing it, so as to be enforceable to the extent compatible with the applicable law as it will then appear.

13.3 Successors and Assigns. This Agreement is for my benefit and the benefit of Company, its successors, assigns, parent corporations, subsidiaries, affiliates, and purchasers, and will be binding upon my heirs, executors, administrators and other legal representatives.

13.4 Survival. The provisions of this Agreement will survive the termination of my employment, regardless of the reason, and the assignment of this Agreement by Company to any successor in interest or other assignee.

13.5 Employment At-Will. I agree and understand that nothing in this Agreement will change my at-will employment status or confer any right with respect to continuation of employment by Company, nor will it interfere in any way with my right or Company's right to terminate my employment at any time, with or without cause or advance notice.

13.6 Waiver. No waiver by Company of any breach of this Agreement will be a waiver of any preceding or succeeding breach. No waiver by Company of any right under this Agreement will be construed as a waiver of any other right. Company will not be required to give notice to enforce strict adherence to all terms of this Agreement.

13.7 Export. I agree not to export, reexport, or transfer, directly or indirectly, any U.S. technical data

acquired from Company or any products utilizing such data, in violation of the United States export laws or regulations.

13.8 Advice of Counsel. I ACKNOWLEDGE THAT, IN EXECUTING THIS AGREEMENT, I HAVE HAD THE OPPORTUNITY TO SEEK THE ADVICE OF INDEPENDENT LEGAL COUNSEL, AND I HAVE READ AND UNDERSTOOD ALL OF THE TERMS AND PROVISIONS OF THIS AGREEMENT. THIS AGREEMENT WILL NOT BE CONSTRUED AGAINST ANY PARTY BY REASON OF THE DRAFTING OR PREPARATION OF THIS AGREEMENT.

13.9 Entire Agreement. The obligations pursuant to Sections 1 and 2 (except Subsections 2.4 and 2.7(a)) of this Agreement will apply to any time during

which I was previously engaged, or am in the future engaged, by Company as a consultant if no other agreement governs nondisclosure and assignment of Inventions during such period. This Agreement is the final, complete and exclusive agreement of the parties with respect to the subject matter of this Agreement and supersedes and merges all prior discussions between us; provided, however, prior to the execution of this Agreement, if Company and I were parties to any agreement regarding the subject matter hereof, that agreement will be superseded by this Agreement prospectively only. No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, will be effective unless in writing and signed by the party to be charged. Any subsequent change or changes in my duties, salary or compensation will not affect the validity or scope of this Agreement.

This Agreement will be effective as of January 10, 2020.

I HAVE READ THIS AGREEMENT CAREFULLY AND UNDERSTAND ITS TERMS. [HAVE COMPLETELY FILLED OUT EXHIBIT A TO THIS AGREEMENT.

Name: /s/ **Joseph Bonaccorso**
Title: Joseph Bonaccorso
 Chief Commercial Officer

ACCEPTED AND AGREED TO:

VERRICA PHARMACEUTICALS INC.

By: /s/ **Ted White**

Name: Ted White
Title: Chief Commercial Officer

EXHIBIT A

LIST OF EXCLUDED INVENTIONS

1. Except as listed in Section 2 below, the following is a complete list of all inventions or improvements relevant to the subject matter of my employment by Verrica Pharmaceuticals Inc. that have been made or conceived or first reduced to practice by me alone or jointly with others prior to my engagement by Verrica Pharmaceuticals Inc.:

D No inventions or improvements.

D See below:

Date
Description

Identifying Number or Brief

D Additional sheets attached.

2. Due to a prior confidentiality agreement, I cannot complete the disclosure under Section 1 above with respect to inventions or improvements generally listed below, the intellectual property rights and duty of confidentiality with respect to which I owe to the following party(ies):

Invention or Improvement	Party(ies)	Relationship
---------------------------------	-------------------	---------------------

1.

2.

3.

D Additional sheets attached.

213884058

Exhibit B
Release Agreement

This Release Agreement ("**Release**" or "**Agreement**") is made by and between Joseph Bonaccorso ("you") and Verrica Pharmaceuticals Inc. (the "**Company**"). A copy of this Release is an attachment to the Amended and Restated Employment Agreement between the Company and you dated January 10, 2020 (the "**Employment Agreement**"). Capitalized terms not defined in this Agreement carry the definition found in the Employment Agreement.

1. Severance Payments; Other Payments.

a. In consideration for your execution, return and non-revocation of this Release on or after your Separation Date, the Company will provide you with the following "**Severance Benefits**": [to include payment of specific severance payments and COBRA benefits to be paid].

b. In addition, regardless of whether you sign this Agreement, the Company affirms that it will pay the following on the next regularly scheduled date on which payroll is run, as required under Section 6 of the Employment Agreement.: [to include payment of all salary, business expense reimbursements and other amounts due to employee that are not part of the severance].

2. Compliance with Section 409A. The Severance Benefits offered to you by the Company are payable in reliance on Treasury Regulation Section 1.409A-1(b)(9) and the short term deferral exemption in Treasury Regulation Section 1.409A-1(b)(4). For purposes of Code Section 409A, your right to receive any installment payments (whether pay in lieu of notice, Severance Benefits, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment shall at all times be considered a separate and distinct payment. All payments and benefits are subject to applicable withholdings and deductions.

3. Release. In exchange for the Severance Benefits and other consideration, to which you would not otherwise be entitled, and except as otherwise set forth in this Agreement, you, on behalf of yourself and, to the extent permitted by law, on behalf of your spouse, heirs, executors, administrators, assigns, insurers, attorneys and other persons or entities, acting or purporting to act on your behalf (collectively, the "**Employee Parties**"), hereby generally and completely release, acquit and forever discharge the Company, its parents and subsidiaries, and its and their officers, directors, managers, partners, agents, representatives, employees, attorneys, shareholders, predecessors, successors, assigns, insurers and affiliates (the "**Company Parties**") of and from any and all claims, liabilities, demands, contentions, actions, causes of action, suits, costs, expenses, attorneys' fees, damages, indemnities, debts, judgments, levies, executions and obligations of every kind and nature, in law, equity, or otherwise, both known and unknown, suspected and unsuspected, disclosed and undisclosed, arising out of or in any way related to my employment with the Company and separation therefrom, arising at any time prior to and including the execution date of this Agreement, including but not limited to: all such claims and demands directly or indirectly arising out of or in any way connected with your employment with the Company or the termination of that employment; claims or demands related to salary, bonuses, commissions, vacation pay, the right to receive additional grants of stock, stock options or other ownership interests in the Company, fringe benefits, expense reimbursements, severance pay, or any other form of compensation; claims pursuant to any federal, state or local law, statute, or cause of action; tort law; or contract law (individually a "**Claim**" and collectively "**Claims**"). The Claims you are releasing and waiving in this Agreement include, but are not limited to, any and all Claims that any of the Company Parties:

has violated its personnel policies, handbooks, contracts of employment, or covenants of good faith and fair dealing;

has discriminated against you on the basis of age, race, color, sex (including sexual harassment), national origin, ancestry, disability, religion, sexual orientation, marital status, parental status, source of income, entitlement to benefits, any union activities or other protected category in

violation of any local, state or federal law, constitution, ordinance, or regulation, including but not limited to: the Age Discrimination in Employment Act, as amended ("**ADEA**"); Title VII of the Civil Rights Act of 1964, as amended; the Civil Rights Act of 1991; 42 U.S.C. § 1981, as amended; the Equal Pay Act; the Americans With Disabilities Act; the Genetic Information Nondiscrimination Act; the Family and Medical Leave Act; the Pennsylvania Human Relations Act; the Pennsylvania Whistleblower Law; the Pennsylvania Equal Pay Law; the New Jersey Law Against Discrimination; the New Jersey Conscientious Employee Protection Act; the New Jersey Law on Equal Pay; the New Jersey Political Activities of Employees Law; the New Jersey Genetic Testing Law; the New Jersey Family Leave Act; the Employee Retirement Income Security Act; the Employee Polygraph Protection Act; the Worker Adjustment and Retraining Notification Act; the Older Workers Benefit Protection Act; the anti-retaliation provisions of the Sarbanes-Oxley Act, or any other federal or state law regarding whistleblower retaliation; the Lilly Ledbetter Fair Pay Act; the Uniformed Services Employment and Reemployment Rights Act; the Fair Credit Reporting Act; and the National Labor Relations Act; and

has violated any statute, public policy or common law (including, but not limited to, Claims for retaliatory discharge; negligent hiring, retention or supervision; defamation; intentional or negligent infliction of emotional distress and/or mental anguish; intentional interference with contract; negligence; detrimental reliance; loss of consortium to you or any member of your family and/or promissory estoppel).

Notwithstanding the foregoing, other than events expressly contemplated by this Agreement you do not waive or release rights or Claims that may arise: (i) from events that occur after the date this Release is executed; (ii) that relate to a breach of this Agreement; (iii) that relate to any existing ownership interest in the Company or vested equity awards as of the date this Release is executed; (iv) that relate to my vested benefits or existing rights under any Company benefit plan or any plan or agreement related to equity ownership in the Company that arise after this Release is executed; (v) in connection with any right of indemnification you may have for any liabilities arising from your actions within the course and scope of your employment with the Company or within the course and scope of your role as an officer of the Company; and (vi) any Claims which cannot be waived by law, including, without limitation, any rights you may have under applicable workers' compensation laws. Nothing in this Agreement shall prevent you from filing, cooperating with, or participating in any proceeding or investigation before the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, the Occupational Safety and Health Administration, the Securities and Exchange Commission or any other federal government agency, or similar state or local agency ("**Government Agencies**"), or exercising any rights pursuant to Section 7 of the National Labor Relations Act. You further understand this Agreement does not limit your ability to voluntarily communicate with any Government Agencies or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency, including providing documents or other information, without notice to the Company. While this Agreement does not limit your right to receive an award for information provided to the Securities and Exchange Commission, you understand and agree that, you are otherwise waiving, to the fullest extent permitted by law, any and all rights you may have to individual relief based on any Claims that you have released and any rights you have waived by signing this Agreement. If any Claim is not subject to release, to the extent permitted by law, you waive any right or ability to be a class or collective action representative or to otherwise participate in any putative or certified class, collective or multi-party action or proceeding based on such a Claim in which any of the Company Parties is a party.

4. Your Acknowledgments and Affirmations. You also acknowledge and agree that (i) the consideration given to you in exchange for the waiver and release in this Agreement is in addition to anything of value to which you were already entitled, and (ii) that you have been paid for all time worked, have received all the leave, leaves of absence and leave benefits and protections for which you are eligible, and have not suffered any on-the-job injury for which you have not already filed a Claim. You affirm that all of the decisions of the Company Parties regarding your pay and benefits through the date of your execution of this Agreement were not discriminatory based on age, disability, race, color, sex, religion, national origin or any other classification protected by law. You affirm that you have not filed or caused to be filed, and are not presently a party to, a Claim against any of the Company Parties. You further affirm that you have no known workplace injuries or occupational diseases. You acknowledge and affirm that you have not been retaliated against for reporting any allegation of corporate fraud or other wrongdoing by any of the Company Parties, or for exercising any rights protected by law,

including any rights protected by the Fair Labor Standards Act, the Family Medical Leave Act or any related statute or local leave or disability accommodation laws, or any applicable state workers' compensation law. In addition, you acknowledge that you are knowingly and voluntarily waiving and releasing any rights you may have under the ADEA ("**ADEA Waiver**"). You also acknowledge that the consideration given for the ADEA Waiver is in addition to anything of value to which you were already entitled. You further acknowledge that you have been advised by this writing, as required by the ADEA, that: (a) your release and waiver herein does not apply to any rights or claims that arise after the date you sign this Agreement; (b) you should consult with an attorney prior to signing this Agreement; (c) you have twenty-one (21) days to consider this Agreement (although you may choose to voluntarily sign it sooner); (d) you have seven (7) days following the date you sign this Agreement to revoke it (by sending written revocation directly to Christopher G. Hayes, General Counsel for the Company; and (e) the Agreement will not be effective until the date upon which the revocation period has expired unexercised, which will be the eighth (8th) day after you sign this Agreement.

5. **Return of Company Property.** By the Separation Date, you agree to return to the Company all Company documents (and all copies thereof) and other Company property that you have had in your possession at any time, including, but not limited to, Company files, notes, drawings, records, business plans and forecasts, financial information, specifications, computer-recorded information, tangible property (including, but not limited to, computers), credit cards, entry cards, identification badges and keys; and, any materials of any kind that contain or embody any proprietary or confidential information of the Company (and all reproductions thereof). Please coordinate return of Company property with Christopher G. Hayes, General Counsel for the Company. **Receipt of the Severance Benefits described in Section 1 of this Agreement is expressly conditioned upon return of all Company property.**

6. **Confidential Information, Non-Competition and Non-Solicitation Obligations.** Both during and after your employment you acknowledge your continuing obligations under your Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement not to use or disclose any confidential or proprietary information of the Company and comply with your post-employment non-competition and nonsolicitation restrictions. The Company acknowledges that you will not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that: (A) is made (i) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. In addition, in the event that you file a lawsuit for retaliation by the Company for reporting a suspected violation of law, you may disclose the trade secret to your attorney and use the trade secret information in the court proceeding, if you: (A) file any document containing the trade secret under seal; and (B) do not disclose the trade secret, except pursuant to court order.

7. **Confidentiality.** The provisions of this Agreement will be held in strictest confidence by you and will not be publicized or disclosed in any manner whatsoever; *provided, however*, that: (a) you may disclose this Agreement to your immediate family; (b) you may disclose this Agreement in confidence to your attorney, accountant, auditor, tax preparer, and financial advisor; and (c) you may disclose this Agreement insofar as such disclosure may be required by law. Notwithstanding the foregoing, nothing in this Agreement shall limit your right to discuss your employment with the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, other federal government agency or similar state or local agency or to discuss the terms and conditions of your employment with others to the extent expressly permitted by Section 7 of the National Labor Relations Act.

8. **Non-Disparagement.** You and the Company agree not to disparage each other, and the other's attorneys, directors, managers, partners, employees, agents and affiliates, in any manner likely to be harmful to them or their business, business reputation or personal reputation; provided that you and the Company will respond accurately and fully to any question, inquiry or request for information when required by legal process. For purposes of this Section 8, the obligations of the Company shall apply only to the senior management team and the members of the Board of Directors. Notwithstanding the foregoing, nothing in this Agreement shall limit your right to voluntarily communicate with the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, other federal government agency or similar state or local agency or to discuss the terms and conditions of your employment with others to the extent expressly permitted by Section 7 of the National Labor Relations Act.

9. **No Admission.** This Agreement does not constitute an admission by you or by the Company of any wrongful action or violation of any federal, state, or local statute, or common law rights, including those relating to the provisions of any law or statute concerning employment actions, or of any other possible or claimed violation of law or rights.

10. **Breach.** You agree that upon any material breach of this Agreement you will forfeit all amounts paid or owing to you under this Agreement. Further, you acknowledge that it may be impossible to assess the damages caused by your violation of the terms of Sections 5, 6, 7 and 8 of this Agreement and further agree that any threatened or actual violation or breach of those Sections of this Agreement will constitute immediate and irreparable injury to the Company. You therefore agree that, in addition to any and all other damages and remedies available to the Company upon your breach of this Agreement, the Company shall be entitled to an injunction to prevent you from violating or breaching this Agreement.

11. **Miscellaneous.** This Agreement is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. This Agreement may not be modified or amended except in a writing signed by both you and a duly authorized officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure to the benefit of both you and the Company, their heirs, successors and assigns. If any provision of this Agreement is determined to be invalid or unenforceable, in whole or in part, this determination will not affect any other provision of this Agreement and the provision in question will be modified by the court so as to be rendered enforceable. This Agreement will be deemed to have been entered into and will be construed and enforced in accordance with the laws of the Commonwealth of Pennsylvania as applied to contracts made and to be performed entirely within the Commonwealth of Pennsylvania.

VERRICA PHARMACEUTICALS INC.

By: _____
Name:
Title:

I UNDERSTAND THAT THIS AGREEMENT INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS, EVEN THOSE UNKNOWN CLAIMS THAT IF KNOWN BY ME, WOULD AFFECT MY DECISION TO ACCEPT THIS AGREEMENT.

Joseph Bonaccorso

213698993

AMENDED AND RESTATED EMPLOYMENT AGREEMENT

This **AMENDED AND RESTATED EMPLOYMENT AGREEMENT** (the "**Agreement**"), by and between Verrica Pharmaceuticals Inc., a Delaware corporation (the "**Company**") and Patrick Burnett, MD, PhD, FAAD (the "**Employee**"), amends, restates, and supersedes in its entirety the Employment Agreement between the Company and the Employee that was effective March 7, 2018, as supplemented by an Acknowledgment dated April 4, 2018 (such March 7, 2018 and April 4, 2018 agreements together, the "**Prior Agreement**"). This Agreement is entered into effective January 10, 2020 (the "**Effective Date**"). Company and Employee are each herein referred to individually as a "**Party**," or collectively as the "**Parties**").

Whereas, the Company desires to continue to employ the Employee in the capacity of full-time Chief Medical Officer ("**CMO**") pursuant to the terms of this Agreement and, in connection therewith, to compensate the Employee for Employee's personal services to the Company; and

Whereas, the Employee wishes to continue to be employed by the Company and provide personal services to the Company in return for certain compensation.

Accordingly, in consideration of the mutual promises and covenants contained herein, the parties agree to the following:

1. EMPLOYMENT BY THE COMPANY.

1.1 At-Will Employment. Employee shall continue to be employed by the Company on an "at-will" basis, meaning either the Company or Employee may terminate Employee's employment at any time, with or without cause or advanced notice. Any contrary representations that may have been made to Employee shall be superseded by this Agreement. This Agreement shall constitute the full and complete agreement between Employee and the Company on the "at-will" nature of Employee's employment with the Company, which may be changed only in an express written agreement signed by Employee and a duly authorized officer of the Company. Employee's rights to any compensation following a termination shall be only as set forth in Section 6.

1.2 Position. Subject to the terms set forth herein, the Company agrees to continue to employ Employee, initially, in the position of CMO and Employee hereby accepts such continued employment. During the term of Employee's employment with the Company, Employee will continue to devote Employee's best efforts and substantially all of Employee's business time and attention to the business of the Company.

1.3 Duties. Employee will continue to report to the Chief Executive Officer ("**CEO**") of the Company, performing such duties as are normally associated with his position and such duties as are assigned to him from time to time, subject to the oversight and direction of the CEO and the Company's Board of Directors (the "**Board**"). Employee shall perform his duties under this Agreement principally out of the Company's office in Berkley Heights, NJ or such other location as assigned. In addition, the Employee shall make such business trips to such places as may be necessary or advisable for the efficient operations of the Company.

1.4 **Company Policies and Benefits.** The employment relationship between the parties shall remain subject to the Company's personnel policies and procedures as they may be interpreted, adopted, revised or deleted from time to time in the Company's sole discretion. The Employee remains eligible to participate on the same basis as similarly situated employees in the Company's benefit plans and paid time off policies, in all cases, as in effect from time to time during his employment. All matters of eligibility for coverage or benefits under any benefit plan shall be determined in accordance with the provisions of such plan. The Company reserves the right to change, alter, or terminate any benefit plan in its sole discretion. Notwithstanding the foregoing, in the event that the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

2. **COMPENSATION.**

2.1 **Salary.** Employee shall receive for Employee's services to be rendered hereunder an initial annualized base salary of \$374,500 per year, subject to review and adjustment from time to time by the Company in its sole discretion, payable subject to standard federal and state payroll withholding requirements in accordance with Company's standard payroll practices ("***Base Salary***").

2.2 **Bonus.**

(a) **During Employment.** Employee shall be eligible to earn an annual performance bonus with a target amount equal to 40% (the "***Target Percentage***") of his Base Salary ("***Annual Bonus***"). The Annual Bonus will be based upon the Board's assessment of the Employee's performance and the Company's attainment of targeted goals as set by the Board in its sole discretion. The Annual Bonus, if any, will be subject to applicable payroll deductions and withholdings. Following the close of each calendar year, the Board will determine whether the Employee has earned the Annual Bonus, and the amount of any Annual Bonus, which can be above or below the Target Percentage, based on the set criteria. No amount of the Annual Bonus is guaranteed, and the Employee must be an employee in good standing on the Annual Bonus payment date to be eligible to receive an Annual Bonus; no partial or prorated bonuses will be provided. The Annual Bonus, if earned, will be paid no later than March 15 of the calendar year immediately following the applicable calendar year for which the Annual Bonus is being measured. The Employee's eligibility for an Annual Bonus is subject to change in the discretion of the Board (or any authorized committee thereof).

(b) **Upon Termination.** In the event Employee leaves the employ of the Company for any reason prior to payment of any bonus, he is not eligible for such bonus, prorated or otherwise.

2.3 **Future Equity Awards.** Employee remains eligible to be considered for future equity awards as may be determined by the Board or a committee of the Board in its discretion in accordance with the terms of any applicable equity plan or arrangement that may be in effect from time to time.

2.4 **Expense Reimbursement.** The Company will reimburse Employee for all reasonable, documented business expenses incurred in connection with his services hereunder, in accordance with the Company's business expense reimbursement policies and procedures as may be in effect from time to time.

3. **CONFIDENTIAL INFORMATION, INVENTIONS, NON-COMPETITION AND NON- SOLICITATION OBLIGATIONS.** As a condition of continued employment , and in consideration for the benefits provided under this Agreement that were not provided under the Prior Agreement, Employee agrees to execute and abide by an **Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement** attached as **Exhibit A** (the "**Confidential Information Agreement**"), which may be amended by the parties from time to time without regard to this Agreement. The Confidential Information Agreement contains provisions that are intended by the parties to survive and do survive termination or expiration of this Agreement.

4. **OUTSIDE ACTIVITIES.** Except with the prior written consent of the Company's Board, Employee will not, while employed by the Company, undertake or engage in any other employment, occupation or business enterprise that would interfere with Employee's responsibilities and the performance of Employee's duties hereunder except for (i) reasonable time devoted to volunteer services for or on behalf of such religious, educational, non-profit and/or other charitable organization as Employee may wish to serve; (ii) reasonable time devoted to activities in the non-profit and business communities consistent with Employee's duties; (iii) reasonable time devoted to service on boards of directors of companies that are not competitive with the Company, do not otherwise present a conflict of interest and would not otherwise interfere with Employee's responsibilities and the performance of Employee's duties hereunder, subject to the prior written approval of the Board (which approval shall not be unreasonably withheld); (iv) such other activities that would not interfere with Employee's responsibilities and the performance of Employee's duties hereunder as may be specifically approved by the Board (which approval shall not be unreasonably withheld); and (v) Employee's continuing to practice medicine on a volunteer basis to the extent required to maintain his existing medical board certification, which amount shall not exceed four (4) hours per week. This restriction shall not, however, preclude the Employee from owning less than one percent (1%) of the total outstanding shares of a publicly traded company.

5. **No CONFLICT WITH EXISTING OBLIGATIONS.** Employee represents that Employee's performance of all the terms of this Agreement and as an Employee of the Company do not and will not breach any agreement or obligation of any kind made prior to Employee's employment by the Company, including agreements or obligations Employee may have with prior employers or entities for which Employee has provided services. Employee has not entered into, and Employee agrees that Employee will not enter into, any agreement or obligation, either written or oral, in conflict herewith.

6. **TERMINATION OF EMPLOYMENT.** The parties acknowledge that Employee's employment relationship with the Company continues to be at-will. Either Employee or the Company may terminate the employment relationship at any time, with or without Cause. The provisions in this Section govern the amount of compensation, if any, to be provided to Employee upon termination of employment and do not alter this at-will status.

6.1 Termination by the Company Without Cause (not in Connection with a Change in Control).

(a) The Company shall have the right to terminate Employee's employment with the Company pursuant to this Section 6.1 at any time without "Cause" (as

defined in Section 6.2(a) below) by giving notice as described in Section 6.7 of this Agreement. A termination pursuant to Section 6.6 below is not a termination without "Cause" for purposes of receiving the benefits described in this Section 6.1.

(b) In the event Employee's employment is terminated without Cause at any time except during the Change in Control Measurement Period (as defined in Section 6.4 below), then provided that the Employee executes and does not revoke a separation agreement that includes a general release substantially in the form attached hereto as **Exhibit B** (the "**Release**"), and subject to Section 6.1(c) (the date that the Release becomes effective and may no longer be revoked by the Employee is referred to as the "**Release Date**"), then Employee shall be eligible for the following "**Non-CIC Severance Benefits**":

(i) the Company shall pay to Employee an amount equal to Employee's then current Base Salary for the Severance Period (as defined below), less applicable withholdings and deductions, in installments in accordance with the Company's ordinary payroll practices commencing on the Company's first regular payroll date that is more than sixty (60) days following the Separation Date (as defined below), and shall be for any accrued Base Salary for the sixty (60) day period plus the period from the sixtieth (60th) day until the regular payroll date, if applicable, and all salary continuation payments thereafter, if any, shall be made on the Company's regular payroll dates; and

(ii) if the Employee timely elects continued coverage under COBRA for himself and his covered dependents under the Company's group health plans following such termination, then the Employee will be entitled to the following COBRA benefits: the Company shall pay the COBRA premiums necessary to continue the Employee's and his covered dependents' health insurance coverage in effect for himself (and his covered dependents) on the termination date until the earliest of (x) a number of months following the termination date equal to the Severance Period; (y) the date when the Employee becomes eligible for health insurance coverage in connection with new employment or self-employment; or (iii) the date the Employee ceases to be eligible for COBRA continuation coverage for any reason, including plan termination (such period from the termination date through the earlier of (i)-(iii), the "**Non-CIC COBRA Payment Period**"). Notwithstanding the foregoing, if at any time the Company determines that its payment of COBRA premiums on the Employee's behalf would result in a violation of applicable law (including but not limited to the 2010 Patient Protection and Affordable Care Act, as amended by the 2010 Health Care and Education Reconciliation Act), then in lieu of paying COBRA premiums pursuant to this Section, the Company shall pay the Employee on the last day of each remaining month of the Non-CIC COBRA Payment Period, a fully taxable cash payment equal to the COBRA premium for such month, subject to applicable tax withholding (such amount, the "**Special Severance Payment**"), such Special Severance Payment to be made without regard to the Employee's payment of COBRA premiums and without regard to the expiration of the COBRA period prior to the end of the Non-CIC COBRA Payment Period. Nothing in this Agreement shall deprive the Employee of his rights under COBRA or ERISA for benefits under plans and policies arising under his employment by the Company.

(c) Employee shall not receive the Non-CIC Severance Benefits pursuant to Section 6.1(b), or the CIC Severance Benefits (as defined below) pursuant to Section 6.4(a), unless he executes the Release within the consideration period specified therein, which

shall in no event be more than sixty (60) days, and until the Release becomes effective and can no longer be revoked by Employee under its terms. Employee's ability to receive benefits pursuant to Section 6.1(b) or Section 6.4(a) is further conditioned upon his: returning all Company property; complying with his post-termination obligations under this Agreement and the Confidential Information Agreement; and complying with the Release including without limitation any non-disparagement and confidentiality provisions contained therein.

(d) The benefits provided to Employee pursuant to this Section 6.1 are in lieu of, and not in addition to, any benefits to which Employee may otherwise be entitled under any Company severance plan, policy or program. For avoidance of doubt, Employee shall not be eligible for both CIC Severance Benefits and Non-CIC Severance Benefits.

(e) The damages caused by the termination of Employee's employment without Cause would be difficult to ascertain; therefore, the severance for which Employee is eligible pursuant to Section 6.1(b) above in exchange for the Release is agreed to by the parties as liquidated damages, to serve as full compensation, and not a penalty.

(f) For purposes of this Agreement, "**Severance Period**" shall mean

(i) zero (0) months in the event a termination under this Section 6.1 or under Section 6.3 (an "**Involuntary Termination**") occurs on or before April 4, 2019 (ii) six (6) months in the event an Involuntary Termination occurs after April 4, 2019 and on or before April 4, 2020, and (iii) twelve (12) months in the event an Involuntary Termination occurs after April 4, 2020.

6.2 Termination by the Company for Cause. Subject to Section 6.2(b) below, the Company shall have the right to terminate Employee's employment with the Company at any time for Cause by giving notice as described in this Section 6.2 and in Section 6.6 of this Agreement.

(a) "Cause" for termination shall mean the occurrence of any of the following: (i) Employee's conviction of any felony or any crime involving fraud or dishonesty; (ii) Employee's participation in a fraud, act of dishonesty or other act of gross misconduct that adversely affects the Company; (iii) conduct by Employee that demonstrates Employee's gross unfitness to serve under circumstances that materially and adversely affect the Company; (iv) Employee's violation of any statutory or fiduciary duty, or duty of loyalty, owed to the Company; (v) Employee's breach of any material term of any contract between such Employee and the Company; and/or (vi) Employee's serious violation of a material Company policy. Whether a termination is for Cause shall be decided by the Board in its sole and exclusive judgment and discretion. Prior to termination for Cause pursuant to each event listed in (iii) and (iv) above, the Company shall give the Employee notice of such event(s), which notice shall specify in reasonable detail the circumstances constituting Cause, and an opportunity to explain the circumstances. Prior to any termination for Cause pursuant to each event listed in (v) and (vi) above, to the extent such event(s) is (are) capable of being cured by Employee, (A) the Company shall give the Employee notice of such event(s), which notice shall specify in reasonable detail the circumstances constituting Cause, and an opportunity to cure, and (B) there shall be no Cause with respect to any such event(s) if the Board determines in good faith that such events have been cured by Employee within fifteen (15) days after the delivery of such notice.

(b) In the event Employee's employment is terminated at any time for Cause, Employee will not receive the Non-CIC Severance Benefits described in Section 6.1(b), the CIC Severance Benefits described in Section 6.4(a), or any other severance compensation or benefit, except that, pursuant to the Company's standard payroll policies, the Company shall pay to Employee the accrued but unpaid salary of Employee through the date of termination, together with all compensation and benefits payable to Employee based on his participation in any compensation or benefit plan, program or arrangement through the date of termination.

6.3 Resignation by the Employee With Good Reason (not in Connection with a Change in Control).

(a) Employee may resign from Employee's employment with the Company for Good Reason by giving notice following the end of the Cure Period (as defined in this Section). For purposes of this Agreement, "Good Reason" for the Employee to terminate his employment hereunder shall mean any of following actions are taken by the Company without Employee's prior written consent: (i) a material reduction by the Company of Employee's Base Salary as initially set forth herein or as the same may be increased from time to time, provided, however, that if such reduction occurs in connection with a Company-wide decrease in executive team compensation, such reduction shall not constitute Good Reason; (ii) a material breach of this Agreement by the Company; (iii) the relocation of Employee's principal place of employment, without Employee's consent, by fifty (50) or more miles from his then current principal place of employment immediately prior to such relocation; or (iv) a material reduction in Employee's title, duties, authority, or responsibilities relative to Employee's title, duties, authority, or responsibilities in effect immediately prior to such reduction; *provided, however*, that, any such termination by Employee shall only be deemed for Good Reason pursuant to this definition if: (1) Employee gives the Company written notice of his intent to terminate for Good Reason within thirty (30) days following the occurrence of the condition(s) that he believes constitute(s) Good Reason, which notice shall describe such condition(s); (2) the

Company fails to remedy such condition(s) within thirty (30) days following receipt of the written notice (the "**Cure Period**"); and (3) Employee voluntarily terminates his employment within thirty (30) days following the end of the Cure Period.

(b) In the event Employee resigns from employment for Good Reason at any time except during the Change in Control Measurement Period, then provided that the Employee executes and does not revoke the Release and subject to Section 6.1(c), then the Company shall pay to Employee the Non-CIC Severance Benefits described in Section 6.1(b).

6.4 Termination by the Company without Cause or Resignation by Employee for Good Reason (in connection with a Change in Control).

(a) In the event that Employee's employment is terminated without Cause or Employee resigns for Good Reason in either case within twelve (12) months following or one (1) month prior to the effective date of a Change in Control ("**Change in Control Measurement Period**") of the Company, then provided that the Employee executes and does not revoke the Release and subject to Employee's compliance with the requirements of Section 6.1(c), then Employee will be eligible for the following "**CIC Severance Benefits**:"

(i) the Company shall pay to Employee an amount equal to Employee's then current Base Salary for twelve (12) months, less applicable withholdings and deductions, in installments in accordance with the Company's ordinary payroll practices commencing on the Company's first regular payroll date that is more than sixty (60) days following the Separation Date, and shall be for any accrued Base Salary for the sixty (60) day period plus the period from the sixtieth (60th) day until the regular payroll date, if applicable, and all salary continuation payments thereafter, shall be made on the Company's regular payroll dates; and

(ii) the Company will pay a cash severance benefit equal to the Employee's Annual Bonus paid at the Target Percentage for the year in which Employee's Separation Date occurs. Such cash severance benefit will be paid in a single lump sum cash payment on the Company's first regular payroll date that is more than sixty (60) days following the Separation Date.

(iii) if the Employee timely elects continued coverage under COBRA for himself and his covered dependents under the Company's group health plans following such termination, then the Employee will be entitled to the following COBRA benefits: the Company shall pay the COBRA premiums necessary to continue the Employee's and his covered dependents' health insurance coverage in effect for himself (and his covered dependents) on the termination date until the earliest of (x) twelve (12) months following the termination date; (y) the date when the Employee becomes eligible for health insurance coverage in connection with new employment or self-employment; or (iii) the date the Employee ceases to be eligible for COBRA continuation coverage for any reason, including plan termination (such period from the termination date through the earlier of (i)-(iii), the "**CIC COBRA Payment Period**"). Notwithstanding the foregoing, if at any time the Company determines that its payment of COBRA premiums on the Employee's behalf would result in a violation of applicable law (including but not limited to the 2010 Patient Protection and Affordable Care Act, as amended by the 2010 Health Care and Education Reconciliation Act), then in lieu of paying COBRA premiums pursuant to this Section, the Company shall pay the Employee on the last day

of each remaining month of the CIC COBRA Payment Period the Special Severance Payment, such Special Severance Payment to be made without regard to the Employee's payment of COBRA premiums and without regard to the expiration of the COBRA period prior to the end of the CIC COBRA Payment Period. Nothing in this Agreement shall deprive the Employee of his rights under COBRA or ERISA for benefits under plans and policies arising under his employment by the Company.

(iv) With regard to Employee's equity awards: (i) The vesting and exercisability of all outstanding time-based vesting equity awards and performance-based vesting equity awards (together, the "**Equity Awards**") that are held by Employee on such date shall be accelerated in full as of the later of the effective date of such Change in Control and Employee's termination date, and (ii) any reacquisition or repurchase rights held by the Company in respect of common stock issued pursuant to any other Equity Awards granted Employee by the Company shall lapse in full as of the later of the effective date of such Change in Control and Employee's termination date. For purposes of determining the number of shares that will vest pursuant to this provision with respect to any performance-based vesting equity awards for which the performance period has not ended and that has multiple vesting levels depending upon the level of performance, vesting acceleration with respect to any ongoing performance period(s) shall occur with respect to the number of shares subject to the award as if the applicable performance criteria had been attained at a 100% level or, if greater, based on actual performance as of the later of the effective date of the Change in Control and Employee's termination date. Notwithstanding the foregoing, this Section 6.4(a)(iv) shall not apply to common stock issued under or held in any plan sponsored by the Company or its affiliates that is intended to be qualified under Section 401(a) of the Internal Revenue Code of 1986, as amended. Notwithstanding any contrary terms governing the Equity Awards or common stock held by Employee, if a Change in Control has not occurred prior to Employee's termination date, no forfeiture of the Equity Awards will occur and no reacquisition or repurchase rights will be exercised by the Company for one month following the termination date, to enable the application of this paragraph if a Change in Control does occur during that month.

(b) The CIC Severance Benefits provided to Employee pursuant to this Section 6.4 are in lieu of, and not in addition to, any benefits to which Employee may otherwise be entitled under any Company severance plan, policy or program.

(c) Any damages caused by the termination of Employee's employment without Cause during the Change in Control Measurement Period would be difficult to ascertain; therefore, the CIC Severance Benefits for which Employee is eligible pursuant to Section 6.4(a) above in exchange for the Release are agreed to by the parties as liquidated damages, to serve as full compensation, and not a penalty.

6.5 Resignation by the Employee Without Good Reason.

(a) Employee may resign from Employee's employment with the Company at any time by giving notice as described in Section 6.7.

(b) In the event Employee resigns from Employee's employment with the Company other than for Good Reason, Employee will not receive the Non-CIC Severance Benefits, the CIC-Severance Benefits, or any other severance compensation or benefit, except that, pursuant to the Company's standard payroll policies, the Company shall pay to Employee

the accrued but unpaid salary of Employee through the date of resignation, together with all compensation and benefits payable to Employee through the date of resignation under any compensation or benefit plan, program or arrangement during such period and Employee shall be eligible for any benefit continuation or conversion rights provided by the provisions of a benefit plan or by law.

6.6 Termination b Virtue of Death or Disability of the Employee.

(a) In the event of Employee's death while employed pursuant to this Agreement, all obligations of the parties hereunder shall terminate immediately, and the Company shall, pursuant to the Company's standard payroll policies, pay to the Employee's legal representatives Employee's accrued but unpaid salary through the date of death together with all compensation and benefits payable to Employee based on his participation in any compensation or benefit plan, program or arrangement through the date of termination.

(b) Subject to applicable state and federal law, the Company shall at all times have the right, upon written notice to the Employee, to terminate this Agreement based on the Employee's Disability (as defined below). Termination by the Company of the Employee's employment based on "**Disability**" shall mean termination because the Employee is unable due to a physical or mental condition to perform the essential functions of his position with or without reasonable accommodation for six (6) months in the aggregate during any twelve (12) month period or based on the written certification by two licensed physicians of the likely continuation of such condition for such period, provided that such condition meets the definition of a disability for coverage under the terms of Company's then-current long-term disability insurance plan. This definition shall be interpreted and applied consistent with the Americans with Disabilities Act, the Family and Medical Leave Act, and other applicable law. In the event Employee's employment is terminated based on the Employee's Disability, Employee will not receive the Non-CIC Severance Benefits, the CIC Severance Benefits, or any other severance compensation or benefit, except that, pursuant to the Company's standard payroll policies, the Company shall pay to Employee the accrued but unpaid salary of Employee through the date of termination, together with all compensation and benefits payable to Employee based on his participation in any compensation or benefit plan, program or arrangement through the date of termination.

6.7 Notice; Effective Date of Termination.

(a) Termination of Employee's employment (the "**Separation Date**") pursuant to this Agreement shall be effective as follows:

(i) ten (10) days after the Company has provided Employee with written notice of Employee's termination without Cause under Section 6.1 or 6.4;

(ii) For a termination for Cause: (aa) under Section 6.2(a)(i) or 6.2(a)(ii), immediately upon provision by the Company of written notice of the reasons to Employee; (bb) under Section 6.2(a)(iii) or 6.2(a)(iv), following the required written notice to Employee and expiration of the period during which Employee may explain; (cc) under Section 6.2(a)(v) or 6.2(a)(vi), following the required written notice to Employee and expiration of the 15-day cure period, if Employee has not cured;

(iii) immediately upon the Employee's death;

(iv) thirty (30) days after the Company gives notice to Employee of Employee's termination on account of Employee's Disability under Section 6.6, unless the Company specifies a later Separation Date, in which case, termination shall be effective as of such later Separation Date, *provided* that Employee has not returned to the full time performance of Employee's duties prior to such date;

(v) on the date specified in Employee's written notice of Employee's resignation for Good Reason, provided it is within thirty (30) days after the Cure Period has ended and the Company has failed to remedy any of the reasons for Good Reason set forth in Employee's initial notice under Section 6.3(a); or

(vi) ten (10) days after the Employee gives written notice to the Company of Employee's resignation, *provided* that the Company may set a Separation Date at any time between the date of notice and the date of resignation, in which case the Employee's resignation shall be effective as of such other date. Employee will receive compensation through the Separation Date.

(b) In the event notice of a termination under subsections (a)(iii) and (iv) is given orally, at the other party's request, the party giving notice must provide written confirmation of such notice within five (5) business days of the request in compliance with the requirement of Section 7.1 below. In the event of a termination for Cause, written confirmation shall specify the subsection(s) of the definition of Cause relied on to support the decision to terminate.

6.8 Cooperation With Company After Termination of Employment. Following termination of Employee's employment for any reason, Employee shall reasonably cooperate with the Company in all matters relating to the winding up of Employee's pending work including, but not limited to, any litigation in which the Company is involved, and the orderly transfer of any such pending work to such other Employees as may be designated by the Company.

6.9 Application of Section 409A. Notwithstanding anything to the contrary set forth herein, any payments and benefits provided under this Agreement that constitute "deferred compensation" within the meaning of Section 409A of the Internal Revenue Code of 1986, as amended ("**Code**") and the regulations and other guidance thereunder and any state law of similar effect (collectively, "**Section 409A**") shall not commence in connection with Employee's termination of employment unless and until Employee has also incurred a "separation from service" (as such term is defined in Treasury Regulation Section 1.409A-1(h)) ("**Separation From Service**"), unless the Company reasonably determines that such amounts may be provided to Employee without causing Employee to incur the additional 20% tax under Section 409A. It is intended that each installment of severance pay provided for in this Agreement is a separate "payment" for purposes of Treasury Regulation Section 1.409A-2(b)(2)(i). For the avoidance of doubt, it is intended that severance payments set forth in this Agreement satisfy, to the greatest extent possible, the exceptions from the application of Section 409A provided under Treasury Regulation Sections 1.409A-1(b)(4), 1.409A-1(b)(5), and 1.409A-1(b)(9). If the Company (or, if applicable, the successor entity thereto) determines that any payments or benefits constitute "deferred compensation" under Section 409A and Employee

is, on the termination of service, a "specified employee" of the Company or any successor entity thereto, as such term is defined in Section 409A(a)(2)(B)(i) of the Code, then, solely to the extent necessary to avoid the incurrence of the adverse personal tax consequences under Section 409A, the timing of the payments and benefits shall be delayed until the earlier to occur of: (a) the date that is six months and one day after Employee's Separation From Service, or (b) the date of Employee's death (such applicable date, the "**Specified Employee Initial Payment Date**"). On the Specified Employee Initial Payment Date, the Company (or the successor entity thereto, as applicable) shall (i) pay to Employee a lump sum amount equal to the sum of the payments and benefits that Employee would otherwise have received through the Specified Employee Initial Payment Date if the commencement of the payment of such amounts had not been so delayed pursuant to this Section and (ii) commence paying the balance of the payments and benefits in accordance with the applicable payment schedules set forth in this Agreement. All reimbursements provided under this Agreement shall be subject to the following requirements:

(i) the amount of in-kind benefits provided or reimbursable expenses incurred in one taxable year shall not affect the in-kind benefits to be provided or the expenses eligible for reimbursement in any other taxable year, (ii) all reimbursements shall be paid as soon as administratively practicable, but in no event shall any reimbursement be paid after the last day of the taxable year following the taxable year in which the expense was incurred, and (iii) the right to reimbursement or in-kind benefits is not subject to liquidation or exchange for any other benefit. It is intended that all payments and benefits under this Agreement shall either comply with or be exempt from the requirements of Section 409A, and any ambiguity contained herein shall be interpreted in such manner so as to avoid adverse personal tax consequences under Section 409A. Notwithstanding the foregoing, the Company shall in no event be obligated to indemnify the Employee for any taxes or interest that may be assessed by the Internal Revenue Service pursuant to Section 409A of the Code to payments made pursuant to this Agreement.

7. **GENERAL PROVISIONS.**

7.1 **Notices.** Any notices required hereunder to be in writing shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by electronic mail, telex or confirmed facsimile if sent during normal business hours of the recipient, and if not, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the Company at its primary office location and to Employee at Employee's address as listed on the Company payroll, or at such other address as the Company or the Employee may designate by ten (10) days advance written notice to the other.

7.2 **Severability.** Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provisions had never been contained herein.

7.3 **Waiver.** If either party should waive any breach of any provisions of this Agreement, such party shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement.

7.4 **Complete Agreement.** This Agreement constitutes the entire agreement between Employee and the Company with regard to the subject matter hereof. This Agreement is the complete, final, and exclusive embodiment of their agreement with regard to this subject matter and supersedes any prior oral discussions or written communications and agreements, including the Prior Agreement. This Agreement is entered into without reliance on any promise or representation other than those expressly contained herein, and it cannot be modified or amended except in writing signed by Employee and an authorized officer of the Company. The parties have entered into a separate Confidential Information Agreement and have or may enter into separate agreement related to stock option awards. These separate agreements govern other aspects of the relationship between the parties, have or may have provisions that survive termination of the Employee's employment under this Agreement, may be amended or superseded by the parties without regard to this Agreement and are enforceable according to their terms without regard to the enforcement provision of this Agreement.

7.5 **Counterparts.** This Agreement may be executed in separate counterparts, any one of which need not contain signatures of more than one party, but all of which taken together will constitute one and the same Agreement.

7.6 **Headings.** The headings of the sections hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

7.7 **Successors and Assigns.** The Company shall assign this Agreement and its rights and obligations hereunder in whole, but not in part, to any Company or other entity with or into which the Company may hereafter merge or consolidate or to which the Company may transfer all or substantially all of its assets, if in any such case said Company or other entity shall by operation of law or expressly in writing assume all obligations of the Company hereunder as fully as if it had been originally made a party hereto, but may not otherwise assign this Agreement or its rights and obligations hereunder. The Employee may not assign or transfer this Agreement or any rights or obligations hereunder, other than to his estate upon his death.

7.8 **Choice of Law.** All questions concerning the construction, validity and interpretation of this Agreement will be governed by the law of the Commonwealth of Pennsylvania, without regard to its rules of conflicts or choice of laws.

7.9 **Indemnification.** The Employee shall be entitled to indemnification to the maximum extent permitted by applicable law and the Company's Bylaws with terms no less favorable than provided to any other Company executive officer and subject to the terms of any separate written indemnification agreement. At all times during the Employee's employment, the Company shall maintain in effect a directors and officers liability insurance policy with the Employee as a covered officer.

7.10 **Resolution of Disputes.** The parties recognize that litigation in federal or state courts or before federal or state administrative agencies of disputes arising out of the Employee's employment with the Company or out of this Agreement, or the Employee's

termination of employment or termination of this Agreement, may not be in the best interests of either the Employee or the Company, and may result in unnecessary costs, delays, complexities, and uncertainty. The parties agree that any dispute between the parties arising out of or relating to the negotiation, execution, performance or termination of this Agreement or the Employee's employment, including, but not limited to, any claim arising out of this Agreement, claims under Title VII of the Civil Rights Act of 1964, as amended, the Civil Rights Act of 1991, the Age Discrimination in Employment Act of 1967, the Americans with Disabilities Act of 1990, Section 1981 of the Civil Rights Act of 1966, as amended, the Family Medical Leave Act, the Employee Retirement Income Security Act, and any similar federal, state or local law, statute, regulation, or any common law doctrine, whether that dispute arises during or after employment, shall be settled by binding arbitration conducted before a single arbitrator by Judicial Arbitration and Mediation Services, Inc. ("**JAMS**") or its successor, under the then applicable JAMS rules; *provided however*, that this dispute resolution provision shall not apply to any separate agreements between the parties that do not themselves specify arbitration as an exclusive remedy. The location for the arbitration shall be Philadelphia, Pennsylvania. Any award made by such panel shall be final, binding and conclusive on the parties for all purposes, and judgment upon the award rendered by the arbitrators may be entered in any court having jurisdiction thereof. The arbitrators' fees and expenses and all administrative fees and expenses associated with the filing of the arbitration shall be borne by the Company; *provided however*, that at the Employee's option, Employee may voluntarily pay up to one-half the costs and fees, for which Employee shall be reimbursed by the Company. The parties acknowledge and agree that their obligations to arbitrate under this Section survive the termination of this Agreement and continue after the termination of the employment relationship between Employee and the Company. The parties each further agree that the arbitration provisions of this Agreement shall provide each party with its **exclusive remedy**, and each party expressly waives any right it might have to seek redress in any other forum, except as otherwise expressly provided in this Agreement. By election arbitration as the means for final settlement of all claims, **the parties hereby waive their respective rights to, and agree not to, sue each other in any action in a Federal, State or local court with respect to such claims, but may seek to enforce in court an arbitration award rendered pursuant to this Agreement. The parties specifically agree to waive their respective rights to a trial by jury, and further agree that no demand, request or motion will be made for trial by jury.**

[SIGNATURES TO FOLLOW ON NEXT PAGE]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Employment Agreement on the day and year first written above.

COMPANY:

Verrica Pharmaceuticals Inc.

By:

Name: Ted White

Title: President and Chief Executive Officer

EMPLOYEE:

Patrick Burnett, MD, PhD, FAAD

Exhibit A

Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement

In consideration of my employment or continued employment by Verrica Pharmaceuticals Inc., and its subsidiaries, parents, affiliates, successors and assigns (together, "**Company**") and the compensation now and later paid to me and in further consideration of my eligibility for additional severance opportunities under my Amended and Restated Employment Agreement with Company dated January 10, 2020, I hereby enter into this Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement (the "**Agreement**") and agree as follows:

1. CONFIDENTIAL INFORMATION PROTECTIONS.

1.1 **Recognition of Company's Rights; Nondisclosure.** I understand and acknowledge that my employment by Company creates a relationship of confidence and trust with respect to Company's Confidential Information (as defined below) and that Company has a protectable interest therein. At all times during and after my employment, I will hold in confidence and will not disclose, use, lecture upon or publish any of Company's Confidential Information, except as such disclosure, use or publication may be required in connection with my work for Company, or unless an officer of Company expressly authorizes such disclosure in writing. I will obtain Company's written approval before publishing or submitting for publication any material (written, verbal, or otherwise) that discloses and/or incorporates any Confidential Information. I hereby assign to Verrica Pharmaceuticals Inc. any rights I may have or acquire in such Confidential Information and recognize that all Confidential Information shall be the sole and exclusive property of Verrica Pharmaceuticals Inc. and its assigns. I will take all reasonable precautions to prevent the inadvertent or accidental disclosure of Confidential Information. Notwithstanding the foregoing, pursuant to 18 U.S.C. Section 1833(b), I shall not be held criminally or civilly liable under any Federal or State trade secret Law for the disclosure of a trade secret that:

(1) is made in confidence to a Federal, State, or local government official, either directly or indirectly, or to an attorney, and solely for the purpose of reporting or investigating a suspected violation of law; or (2) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

1.2 **Confidential Information.** The term "Confidential Information" shall mean any and all confidential knowledge, data or information of Company. By way of illustration but not limitation, "**Confidential Information**" includes (a) trade secrets, inventions, mask works, ideas, processes, formulas, software in source or object code versions, data, programs, other works of authorship, know-how, improvements, discoveries, developments, designs and techniques and any other proprietary technology and all Intellectual Property Rights therein (collectively, "**Inventions**"); (b) information regarding research, development, new products, marketing and selling, business plans, budgets and unpublished financial statements, licenses, prices and costs, margins,

discounts, credit terms, pricing and billing policies, quoting procedures, methods of obtaining business, forecasts, future plans and potential strategies, financial projections and business strategies, operational plans, financing and capital-raising plans, activities and agreements, internal services and operational manuals, methods of conducting Company business, suppliers and supplier information, and purchasing; (c) information regarding customers and potential customers of Company, including customer lists, names, representatives, their needs or desires with respect to the types of products or services offered by Company, proposals, bids, contracts and their contents and parties, the type and quantity of products and services provided or sought to be provided to customers and potential customers of Company and other non-public information relating to customers and potential Customers; (d) information regarding any of Company's business partners and their services, including names; representatives, proposals, bids, contracts and their contents and parties, the type and quantity of products and services received by Company, and other non-public information relating to business partners; (e) information regarding personnel, employee lists, compensation, and employee skills; and (f) any other non-public information which a competitor of Company could use to the competitive disadvantage of Company. Notwithstanding the foregoing, it is understood that, at all such times, I am free to use information which was known to me prior to employment with Company or which is generally known in the trade or industry through no breach of this Agreement or other act or omission by me. Notwithstanding the foregoing or anything to the contrary in this Agreement or any other agreement between Company and me, nothing in this Agreement shall limit my right to discuss my employment or report possible violations of Law or regulation with the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, the Securities and Exchange Commission, or other federal government agency or similar state or local agency or to discuss the terms and conditions of my employment with others to the extent expressly permitted by Section 7 of the National Labor Relations Act or to the extent that such disclosure is protected under the applicable provisions of law or regulation, including but not limited to "whistleblower" statutes or other similar provisions that protect such disclosure.

1.3 Third Party Information. I understand, in addition, that Company has received and in the future will receive from third parties their confidential and/or proprietary knowledge, data or information ("**Third Party Information**") subject to a duty on Company's part to maintain the confidentiality of such information and to use it only for certain limited purposes. During my employment and thereafter, I will hold Third Party Information in confidence and will not disclose to anyone (other than Company personnel who need to know such information in connection with their work for Company) or use, except in connection with my work for Company, Third Party Information unless expressly authorized by an officer of Company in writing.

1.4 Term of Nondisclosure Restrictions. I understand that Confidential Information and Third Party Information is never to be used or disclosed by me, as provided in this Section 1. If a temporal limitation on my obligation not to use or disclose such information is required under applicable law, and the Agreement or its restriction(s) cannot otherwise be enforced, I agree and Company agrees that the two (2) year period after the date my employment ends will be the temporal limitation relevant to the contested restriction, provided, however, that this sentence will not apply to trade secrets protected without temporal limitation under applicable law.

1.5 No Improper Use of Information of Prior Employers and Others. During my employment by Company, I will not improperly use or disclose confidential information or trade secrets, if any, of any former employer or any other person to whom I have an obligation of confidentiality, and I will not bring onto the premises of Company any unpublished documents or any property belonging to any former employer or any other person to whom I have an obligation of confidentiality unless consented to in writing by that former employer or person.

2. ASSIGNMENTS OF INVENTIONS.

2.1 Definitions. As used in this Agreement, the term "**Intellectual Property Rights**" means all trade secrets, Copyrights, trademarks, mask work rights, patents and other intellectual property rights recognized by the laws of any jurisdiction or country; the term "**Copyright**" means the exclusive legal right to reproduce, perform, display, distribute and make derivative works of a work of authorship (as a literary, musical, or artistic work) recognized by the laws of any jurisdiction or country; and the term "**Moral Rights**" means all paternity, integrity, disclosure, withdrawal, special and any other similar rights recognized by the laws of any jurisdiction or country.

2.2 Excluded Inventions and Other Inventions. Attached hereto as **Exhibit A** is a list describing all existing Inventions, if any, that may relate to Company's business or actual or demonstrably anticipated research or development and that were made by me or acquired by me prior to the commencement of my employment with, and which are not to be assigned to, Company ("**Excluded Inventions**"). If no such list is attached, I represent and agree that it is because I have no rights in any existing Inventions that may relate to Company's business or actual or demonstrably anticipated research or development. For purposes of this Agreement, "**Other Inventions**" means Inventions in which I have or may have an interest, as of the commencement of my employment, other than Company Inventions (defined below) and Excluded Inventions. I acknowledge and agree that if I use any Excluded Inventions or any Other Inventions in the scope of my employment, or if I include any Excluded Inventions or Other Inventions in any product or service of Company, or if my rights in any Excluded Inventions or Other Inventions may block or interfere with, or may otherwise be required for, the exercise by Company of any rights assigned to Company under this Agreement, I will immediately so notify Company in writing. Unless Company and I agree otherwise in writing as to particular Excluded Inventions or Other Inventions, I hereby grant to Company, in such circumstances (whether or not I give Company notice as required above), a non-exclusive, perpetual, transferable, fully-paid and royalty-free, irrevocable and worldwide license, with rights to sublicense through multiple levels of sublicensees, to reproduce, make derivative works of, distribute, publicly perform, and publicly display in any form or medium, whether now known or later developed, make, have made, use, sell, import, offer for sale, and exercise any and all present or future rights in, such Excluded Inventions and Other Inventions. To the extent that any third parties have rights in any such Other Inventions, I hereby represent and warrant that such third party or parties have validly and irrevocably granted to me the right to grant the license stated above.

2.3 Assignment of Company Inventions. Inventions assigned to Verrica Pharmaceuticals Inc., or to a third party as directed by Verrica Pharmaceuticals Inc. pursuant to Section 2.6, are referred to in this Agreement as "**Company Inventions.**" Subject to Section 2.4 (Unassigned or Nonassignable Inventions) and except for Excluded Inventions set forth in **Exhibit A** and Other Inventions, I hereby assign to Verrica Pharmaceuticals Inc. all my right, title, and interest in and to any and all Inventions (and all Intellectual Property Rights with respect thereto) made, conceived, reduced to practice, or learned by me, either alone or with others, during the period of my employment by Company. To the extent required by applicable Copyright laws, I agree to assign in the future (when any copyrightable Inventions are first

fixed in a tangible medium of expression) my Copyright rights in and to such Inventions. Any assignment of Company Inventions (and all Intellectual Property Rights with respect thereto) hereunder includes an assignment of all Moral Rights. To the extent such Moral Rights cannot be assigned to Verrica Pharmaceuticals Inc. and to the extent the following is allowed by the laws in any country where Moral Rights exist, I hereby unconditionally and irrevocably waive the enforcement of such Moral Rights, and all claims and causes of action of any kind against Company or related to Company's customers, with respect to such rights. I further acknowledge and agree that neither my successors-in-interest nor legal heirs retain any Moral Rights in any Company Inventions (and any Intellectual Property Rights with respect thereto).

2.4 Unassigned or Nonassignable Inventions. I recognize that this Agreement will not be deemed to require assignment of any Invention that I developed entirely on my own time without using Company's equipment, supplies, facilities, trade secrets or Confidential Information, except for those Inventions that either (i) relate to Company's actual or anticipated business, research or development, or (ii) result from or are connected with work performed by me for Company. In addition, this Agreement does not apply to any Invention which qualifies fully for protection from assignment to Company under New Jersey Statutes Annotated § 34:1B-265 ("*New Jersey Inventions Law*").

2.5 Obligation to Keep Company Informed. During the period of my employment and for one (1) year after termination of my employment, I will promptly and fully disclose to Company in writing all Inventions authored, conceived, or reduced to practice by me, either alone or jointly with others. In addition, I will promptly disclose to Company all patent applications filed by me or on my behalf within one (1) year after termination of employment. At the time of each such disclosure, I will advise Company in writing of any Inventions that I believe fully qualify for protection under the provisions of the New Jersey Inventions Law; and I will at that time provide to Company in writing all evidence necessary to substantiate that belief. Company will keep in confidence and will not use for any purpose or disclose to third parties without my consent any Confidential Information disclosed in writing to Company pursuant to this Agreement relating to Inventions that qualify fully for protection under the New Jersey Inventions Law. I will preserve the confidentiality of any Invention that does not fully qualify for protection under the New Jersey Inventions Law.

2.6 Government or Third Party. I agree that, as directed by Company, I will assign to a third party, including without limitation the United States, all my right, title, and interest in and to any particular Company Invention.

2.7 Ownership of Work Product.

(a) I acknowledge that all original works of authorship which are made by me (solely or jointly with others) within the scope of my employment and which are protectable by Copyright are "works made for hire," pursuant to United States Copyright Act (17 U.S.C., Section 101).

(b) I agree that Verrica Pharmaceuticals Inc. will exclusively own all work product that is made by me (solely or jointly with others) within the scope of my employment, and I hereby irrevocably and unconditionally assign to Verrica Pharmaceuticals Inc. all right, title, and interest worldwide in and to such work product. I understand and agree that I have no right to publish on, submit for publishing, or use for any publication any work product protected by this Section, except as necessary to perform services for Company.

2.8 Enforcement of Intellectual Property Rights and Assistance. I will assist Company in every proper way to obtain, and from time to time enforce, United States and foreign Intellectual Property Rights and Moral Rights relating to Company Inventions in any and all countries. To that end I will execute, verify and deliver such documents and perform such other acts (including appearances as a witness) as Company may reasonably request for use in applying for, obtaining, perfecting, evidencing, sustaining and enforcing such Intellectual Property Rights and the assignment thereof. In addition, I will execute, verify and deliver assignments of such Intellectual Property Rights to Verrica Pharmaceuticals Inc. or its designee, including the United States or any third party designated by Verrica Pharmaceuticals Inc. My obligation to assist Company with respect to Intellectual Property Rights relating to such Company Inventions in any and all countries will continue beyond the termination of my employment, but Company will compensate me at a reasonable rate after my termination for the time actually spent by me at Company's request on such assistance. In the event Company is unable for any reason, after reasonable effort, to secure my signature on any document needed in connection with the actions specified in this paragraph, I hereby irrevocably designate and appoint Company and its duly authorized officers and agents as my agent and attorney in fact, which appointment is coupled with an interest, to act for and in my behalf to execute, verify and file any such documents and to do all other lawfully permitted acts to further the purposes of the preceding paragraph with the same legal force and effect as if executed by me. I hereby waive and quitclaim to Company any and all claims, of any nature whatsoever, which I now or may hereafter have for infringement of any Intellectual Property Rights assigned under this Agreement to Verrica Pharmaceuticals Inc.

2.9 Incorporation of Software Code. I agree that I will not incorporate into any Company software or otherwise deliver to Company any software code licensed under the GNU General Public License or Lesser General Public License or any other license that, by its terms, requires or conditions the use or distribution of such code on the disclosure, licensing, or distribution of any source code owned or licensed by Company except in strict compliance with Company's policies regarding the use of such software.

3.RECORDS. I agree to keep and maintain adequate and current records (in the form of notes, sketches, drawings and in any other form that is required by Company) of all Confidential Information developed by me and all Company Inventions made by me during the period of my employment at Company, which records will be available to and remain the sole property of Company at all times.

4. DUTY OF LOYALTY DURING EMPLOYMENT. I agree that during the period of my employment by Company I will not, without Company's express written consent, directly or indirectly engage in any employment or business activity which is directly or indirectly competitive with, or would otherwise conflict with, my employment by Company.

5. NO SOLICITATION OF EMPLOYEES, CONSULTANTS, CONTRACTORS, OR CUSTOMERS OR POTENTIAL CUSTOMERS. I agree that during the period of my employment and for the one (1) year period after the date my employment ends for any reason, including but not limited to voluntary termination by me or involuntary termination by Company, I will not, as an officer, director, employee, consultant, owner, partner, or in any other capacity, either directly or through others, except on behalf of Company:

5.1 solicit, induce, encourage, or participate in soliciting, inducing or encouraging any person known to me to be an employee, consultant, or independent contractor of Company to terminate his or her relationship with Company, even if I did not initiate the discussion or seek out the contact;

5.2 solicit, induce, encourage, or participate in soliciting, inducing, or encouraging any person known to me to be an employee, consultant, or independent contractor of Company to terminate his or her relationship with Company to render services to me or any other person or entity that researches, develops, markets, sells, performs or provides or is preparing to develop, market, sell, perform or provide Conflicting Services (as defined in Section 6 below);

5.3 hire, employ, or engage in a business venture with as partners or owners or other joint capacity, or attempt to hire, employ, or engage in a business venture as partners or owners or other joint capacity, with any person then employed by Company or who has left the employment of Company within the preceding three (3) months to research, develop, market, sell, perform or provide Conflicting Services;

5.4 solicit, induce or attempt to induce any Customer or Potential Customer (as defined below), to terminate, diminish, or materially alter in a manner harmful to Company its relationship with Company;

5.5 solicit or assist in the solicitation of any Customer or Potential Customer to induce or attempt to induce such Customer or Potential Customer to purchase or contract for any Conflicting Services; or

5.6 perform, provide or attempt to perform or provide any Conflicting Services for a Customer or Potential Customer.

The parties agree that for purposes of this Agreement, a "*Customer or Potential Customer*" is any person or entity who or which, at any time during the one (1) year period prior to my contact with such person or entity as described in Sections 5.4-5.6 above if such contact occurs during my employment or, if such contact occurs following the termination of my employment, during the one (1) year period prior to the date my employment with Company ends: (i) contracted for, was billed for, or received from Company any product, service or process with which I worked directly or indirectly during my employment by Company or about which I acquired Confidential Information; or (ii) was in contact with me or in contact with any other employee, owner, or agent of Company, of which contact I was or should have been aware, concerning the sale or purchase of, or contract for, any product, service or process with which I worked directly or indirectly during my employment with Company or about which I acquired Confidential Information; or (iii) was solicited by Company in an effort in which I was involved or of which I was aware.

6. NON-COMPETE PROVISION. I agree that for the one (1) year period after the date my employment ends for any reason, including but not limited to voluntary termination by me or involuntary termination by Company, I will not, directly or indirectly, as an officer, director, employee, consultant, owner, partner, or in any other capacity solicit, perform, or provide, or attempt to perform or provide Conflicting Services anywhere in the Restricted Territory (as defined below), nor will I assist another person to solicit, perform or provide or attempt to perform or provide Conflicting Services anywhere in the Restricted Territory.

The parties agree that for purposes of this Agreement, "**Conflicting Services**" means any product, service, or process or the research and development thereof, of any person or organization other than Company that directly competes with a product, service, or process, including the research and development thereof, of Company with which I worked directly or indirectly during my employment by Company or about which I acquired Confidential Information during my employment by Company.

The parties agree that for purposes of this Agreement, "**Restricted Territory**" means the one hundred (100) mile radius of any of the following locations: (i) any Company business location at which I have worked on a regular or occasional basis during the preceding year; (ii) my home if I work from home on a regular or occasional basis; (iii) any potential business location of Company under active consideration by Company to which I have traveled in connection with the consideration of that location; (iv) the primary business location of a Customer or Potential Customer; or (v) any business location of a Customer or Potential Customer where representatives of the Customer or Potential Customer with whom I have been in contact in the preceding year are based.

7. REASONABLENESS OF RESTRICTIONS.

7.1 I agree that I have read this entire Agreement and understand it. I agree that this Agreement does not prevent me from earning a living or pursuing my career. I agree that the restrictions contained in this Agreement are reasonable, proper, and necessitated by Company's legitimate business interests. I represent and agree that I am entering into this Agreement freely and with knowledge of its contents with the intent to be bound by the Agreement and the restrictions contained in it.

7.2 In the event that a court finds this Agreement, or any of its restrictions, to be ambiguous, unenforceable, or invalid, I and Company agree that the court will read the Agreement as a whole and interpret the restriction(s) at issue to be enforceable and valid to the maximum extent allowed by law.

7.3 If the court declines to enforce this Agreement in the manner provided in subsection 7.2, I and Company agree that this Agreement will be automatically modified to provide Company with the maximum protection of its business interests allowed by law and I agree to be bound by this Agreement as modified.

7.4 If after applying the provisions of subsections 7.2 and 7.3, a court still decides that this Agreement or any of its restrictions is unenforceable for lack of reasonable geographic limitation and the

Agreement or restriction(s) cannot otherwise be enforced, the parties hereby agree that the fifty (50) mile radius from any location at which I worked for Company on either a regular or occasional basis during the one (1) year immediately preceding termination of my employment with Company shall be the geographic limitation relevant to the contested restriction.

8. **NO CONFLICTING AGREEMENT OR OBLIGATION.** I represent that my performance of all the terms of this Agreement and as an employee of Company does not and will not breach any agreement to keep in confidence information acquired by me in confidence or in trust prior to my employment by Company. I have not entered into, and I agree I will not enter into, any agreement either written or oral in conflict with this Agreement.

9. **RETURN OF COMPANY PROPERTY.** When I leave the employ of Company, I will deliver to Company any and all drawings, notes, memoranda, specifications, devices, formulas and documents, together with all copies thereof, and any other material containing or disclosing any Company Inventions, Third Party Information or Confidential Information of Company. I agree that I will not copy, delete, or alter any information contained upon my Company computer or Company equipment before I return it to Company. In addition, if I have used any personal computer, server, or e-mail system to receive, store, review, prepare or transmit any Company information, including but not limited to, Confidential Information, I agree to provide Company with a computer-useable copy of all such Confidential Information and then permanently delete and expunge such Confidential Information from those systems; and I agree to provide Company access to my system as reasonably requested to verify that the necessary copying and/or deletion is completed. I further agree that any property situated on Company's premises and owned by Company, including disks and other storage media, filing cabinets or other work areas, is subject to inspection by Company's personnel at any time with or without notice. Prior to leaving, I will cooperate with Company in attending an exit interview and completing and signing Company's termination statement if required to do so by Company.

10. LEGAL AND EQUITABLE REMEDIES.

10.1 I agree that it may be impossible to assess the damages caused by my violation of this Agreement or any of its terms. I agree that any threatened or actual violation of this Agreement or any of its terms will constitute immediate and irreparable injury to Company and Company will have the right to enforce this Agreement and any of its provisions by injunction, specific performance or other equitable relief, without bond and without prejudice to any other rights and

remedies that Company may have for a breach or threatened breach of this Agreement.

10.2 I agree that if Company is successful in whole or in part in any legal or equitable action against me under this Agreement, Company will be entitled to payment of all costs, including reasonable attorneys' fees, from me.

10.3 In the event Company enforces this Agreement through a court order, I agree that the restrictions of Sections 5 and 6 will remain in effect for a period of twelve (12) months from the effective date of the order enforcing the Agreement.

11. **NOTICES.** Any notices required or permitted under this Agreement will be given to Company at its headquarters location at the time notice is given, labeled "Attention Chief Executive Officer," and to me at my address as listed on Company payroll, or at such other address as Company or I may designate by written notice to the other. Notice will be effective upon receipt or refusal of delivery. If delivered by certified or registered mail, notice will be considered to have been given five (5) business days after it was mailed, as evidenced by the postmark. If delivered by courier or express mail service, notice will be considered to have been given on the delivery date reflected by the courier or express mail service receipt.

12. PUBLICATION OF THIS AGREEMENT TO SUBSEQUENT EMPLOYER OR BUSINESS ASSOCIATES OF EMPLOYEE.

12.1 If I am offered employment or the opportunity to enter into any business venture as owner, partner, consultant or other capacity while the restrictions described in Sections 5 and 6 of this Agreement are in effect I agree to inform my potential employer, partner, co-owner and/or others involved in managing the business with which I have an opportunity to be associated of my obligations under this Agreement and also agree to provide such person or persons with a copy of this Agreement.

12.2 I agree to inform Company of all employment and business ventures which I enter into while the restrictions described in Sections 5 and 6 of this Agreement are in effect and I also authorize Company to provide copies of this Agreement to my employer, partner, co-owner and/or others involved in managing the business with which I am employed or associated and to make such persons aware of my obligations under this Agreement.

13. GENERAL PROVISIONS.

13.1 Governing Law; Consent to Personal Jurisdiction. This Agreement will be governed by and construed according to the laws of the State of New Jersey as such laws are applied to agreements entered into and to be performed entirely within New Jersey between New Jersey residents. I hereby expressly consent to the personal jurisdiction and venue of the state and federal courts for the county in which Company's principal place of business is located for any lawsuit filed there against me by Company arising from or related to this Agreement.

13.2 Severability. In case any one or more of the provisions, subsections, or sentences contained in this Agreement will, for any reason, be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability will not affect the other provisions of this Agreement, and this Agreement will be construed as if such invalid, illegal or unenforceable provision had never been contained in this Agreement. If moreover, any one or more of the provisions contained in this Agreement will for any reason be held to be excessively broad as to duration, geographical scope, activity or subject, it will be construed by limiting and reducing it, so as to be enforceable to the extent compatible with the applicable law as it will then appear.

13.3 Successors and Assigns. This Agreement is for my benefit and the benefit of Company, its successors, assigns, parent corporations, subsidiaries, affiliates, and purchasers, and will be binding upon my heirs, executors, administrators and other legal representatives.

13.4 Survival. The provisions of this Agreement will survive the termination of my employment, regardless of the reason, and the assignment of this Agreement by Company to any successor in interest or other assignee.

13.5 Employment At-Will. I agree and understand that nothing in this Agreement will change my at-will employment status or confer any right with respect to continuation of employment by Company, nor will it interfere in any way with my right or Company's right to terminate my employment at any time, with or without cause or advance notice.

13.6 Waiver. No waiver by Company of any breach of this Agreement will be a waiver of any preceding or succeeding breach. No waiver by Company of any right under this Agreement will be construed as a waiver of any other right. Company will not be required to give notice to enforce strict adherence to all terms of this Agreement.

13.7 Export. I agree not to export, reexport, or transfer, directly or indirectly, any U.S. technical data

acquired from Company or any products utilizing such data, in violation of the United States export laws or regulations.

13.8 Advice of Counsel. I ACKNOWLEDGE THAT, IN EXECUTING THIS AGREEMENT, I HAVE HAD THE OPPORTUNITY TO SEEK THE ADVICE OF INDEPENDENT LEGAL COUNSEL, AND I HAVE READ AND UNDERSTOOD ALL OF THE TERMS AND PROVISIONS OF THIS AGREEMENT. THIS AGREEMENT WILL NOT BE CONSTRUED AGAINST ANY PARTY BY REASON OF THE DRAFTING OR PREPARATION OF THIS AGREEMENT.

13.9 Entire Agreement. The obligations pursuant to Sections 1 and 2 (except Subsections 2.4 and 2.7(a)) of this Agreement will apply to any time during

which I was previously engaged, or am in the future engaged, by Company as a consultant if no other agreement governs nondisclosure and assignment of Inventions during such period. This Agreement is the final, complete and exclusive agreement of the parties with respect to the subject matter of this Agreement and supersedes and merges all prior discussions between us; provided, however, prior to the execution of this Agreement, if Company and I were parties to any agreement regarding the subject matter hereof, that agreement will be superseded by this Agreement prospectively only. No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, will be effective unless in writing and signed by the party to be charged. Any subsequent change or changes in my duties, salary or compensation will not affect the validity or scope of this Agreement.

This Agreement will be effective as of January 10, 2020.

I HAVE READ THIS AGREEMENT CAREFULLY AND UNDERSTAND ITS TERMS. I HAVE COMPLETELY FILLED OUT EXHIBIT A TO THIS AGREEMENT.

(Signature)

Name:

ACCEPTED AND AGREED TO:

VERRICA PHARMACEUTICALS INC.

By: _____

/s/ **Ted White**

Name: Ted White

Title: CEO

EXHIBIT A

LIST OF EXCLUDED INVENTIONS

1. Except as listed in Section 2 below, the following is a complete list of all inventions or improvements relevant to the subject matter of my employment by Verrica Pharmaceuticals Inc. that have been made or conceived or first reduced to practice by me alone or jointly with others prior to my engagement by Verrica Pharmaceuticals Inc.:

D No inventions or improvements.

D See below:

Identifying Number or Brief Description

D Additional sheets attached.

2. Due to a prior confidentiality agreement, I cannot complete the disclosure under Section 1 above with respect to inventions or improvements generally listed below, the intellectual property rights and duty of confidentiality with respect to which I owe to the following party(ies):

Invention or Improvement	Party(ies) Relationship
---------------------------------	--------------------------------

2.

3.

D Additional sheets attached.

213884058

Exhibit B Release Agreement

This Release Agreement ("**Release**" or "**Agreement**") is made by and between Patrick Burnett, MD, PhD, FAAD ("you") and Verrica Pharmaceuticals Inc. (the "**Company**"). A copy of this Release is an attachment to the Amended and Restated Employment Agreement between the Company and you dated January 10, 2020 (the "**Employment Agreement**"). Capitalized terms not defined in this Agreement carry the definition found in the Employment Agreement.

1. Severance Payments; Other Payments.

a. In consideration for your execution, return and non-revocation of this Release on or after your Separation Date, the Company will provide you with the following "**Severance Benefits**": [to include payment of specific severance payments and COBRA benefits to be paid].

b. In addition, regardless of whether you sign this Agreement, the Company affirms that it will pay the following on the next regularly scheduled date on which payroll is run, as required under Section 6 of the Employment Agreement,: [to include payment of all salary, business expense reimbursements and other amounts due to employee that are not part of the severance].

2. **Compliance with Section 409A.** The Severance Benefits offered to you by the Company are payable in reliance on Treasury Regulation Section 1.409A-1(b)(9) and the short term deferral exemption in Treasury Regulation Section 1.409A-1(b)(4). For purposes of Code Section 409A, your right to receive any installment payments (whether pay in lieu of notice, Severance Benefits, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment shall at all times be considered a separate and distinct payment. All payments and benefits are subject to applicable withholdings and deductions.

3. **Release.** In exchange for the Severance Benefits and other consideration, to which you would not otherwise be entitled, and except as otherwise set forth in this Agreement, you, on behalf of yourself and, to the extent permitted by law, on behalf of your spouse, heirs, executors, administrators, assigns, insurers, attorneys and other persons or entities, acting or purporting to act on your behalf (collectively, the "**Employee Parties**"), hereby generally and completely release, acquit and forever discharge the Company, its parents and subsidiaries, and its and their officers, directors, managers, partners, agents, representatives, employees, attorneys, shareholders, predecessors, successors, assigns, insurers and affiliates (the "**Company Parties**") of and from any and all claims, liabilities, demands, contentions, actions, causes of action, suits, costs, expenses, attorneys' fees, damages, indemnities, debts, judgments, levies, executions and obligations of every kind and nature, in law, equity, or otherwise, both known and unknown, suspected and unsuspected, disclosed and undisclosed, arising out of or in any way related to my employment with the Company and separation therefrom, arising at any time prior to and including the execution date of this Agreement, including but not limited to: all such claims and demands directly or indirectly arising out of or in any way connected with your employment with the Company or the termination of that employment; claims or demands related to salary, bonuses, commissions, vacation pay, the right to receive additional grants of stock, stock options or other ownership interests in the Company, fringe benefits, expense reimbursements, severance pay, or any other form of compensation; claims pursuant to any federal, state or local law, statute, or cause of action; tort law; or contract law (individually a "**Claim**" and collectively "**Claims**"). The Claims you are releasing and waiving in this Agreement include, but are not limited to, any and all Claims that any of the Company Parties:

has violated its personnel policies, handbooks, contracts of employment, or covenants of good faith and fair dealing;

has discriminated against you on the basis of age, race, color, sex (including sexual harassment), national origin, ancestry, disability, religion, sexual orientation, marital status, parental status, source of income, entitlement to benefits, any union activities or other protected category in

violation of any local, state or federal law, constitution, ordinance, or regulation, including but not limited to: the Age Discrimination in Employment Act, as amended ("**ADEA**"); Title VII of the Civil Rights Act of 1964, as amended; the Civil Rights Act of 1991; 42 U.S.C. § 1981, as amended; the Equal Pay Act; the Americans With Disabilities Act; the Genetic Information Nondiscrimination Act; the Family and Medical Leave Act; the Pennsylvania Human Relations Act; the Pennsylvania Whistleblower Law; the Pennsylvania Equal Pay Law; the New Jersey Law Against Discrimination; the New Jersey Conscientious Employee Protection Act; the New Jersey Law on Equal Pay; the New Jersey Political Activities of Employees Law; the New Jersey Genetic Testing Law; the New Jersey Family Leave Act; the Employee Retirement Income Security Act; the Employee Polygraph Protection Act; the Worker Adjustment and Retraining Notification Act; the Older Workers Benefit Protection Act; the anti-retaliation provisions of the Sarbanes-Oxley Act, or any other federal or state law regarding whistleblower retaliation; the Lilly Ledbetter Fair Pay Act; the Uniformed Services Employment and Reemployment Rights Act; the Fair Credit Reporting Act; and the National Labor Relations Act; and

- has violated any statute, public policy or common law (including, but not limited to, Claims for retaliatory discharge; negligent hiring, retention or supervision; defamation; intentional or negligent infliction of emotional distress and/or mental anguish; intentional interference with contract; negligence; detrimental reliance; loss of consortium to you or any member of your family and/or promissory estoppel).

Notwithstanding the foregoing, other than events expressly contemplated by this Agreement you do not waive or release rights or Claims that may arise: (i) from events that occur after the date this Release is executed; (ii) that relate to a breach of this Agreement; (iii) that relate to any existing ownership interest in the Company or vested equity awards as of the date this Release is executed; (iv) that relate to my vested benefits or existing rights under any Company benefit plan or any plan or agreement related to equity ownership in the Company that arise after this Release is executed; (v) in connection with any right of indemnification you may have for any liabilities arising from your actions within the course and scope of your employment with the Company or within the course and scope of your role as an officer of the Company; and (vi) any Claims which cannot be waived by law, including, without limitation, any rights you may have under applicable workers' compensation laws. Nothing in this Agreement shall prevent you from filing, cooperating with, or participating in any proceeding or investigation before the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, the Occupational Safety and Health Administration, the Securities and Exchange Commission or any other federal government agency, or similar state or local agency ("**Government Agencies**"), or exercising any rights pursuant to Section 7 of the National Labor Relations Act. You further understand this Agreement does not limit your ability to voluntarily communicate with any Government Agencies or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency, including providing documents or other information, without notice to the Company. While this Agreement does not limit your right to receive an award for information provided to the Securities and Exchange Commission, you understand and agree that, you are otherwise waiving, to the fullest extent permitted by law, any and all rights you may have to individual relief based on any Claims that you have released and any rights you have waived by signing this Agreement. If any Claim is not subject to release, to the extent permitted by law, you waive any right or ability to be a class or collective action representative or to otherwise participate in any putative or certified class, collective or multi-party action or proceeding based on such a Claim in which any of the Company Parties is a party.

4. Your Acknowledgments and Affirmations. You also acknowledge and agree that (i) the consideration given to you in exchange for the waiver and release in this Agreement is in addition to anything of value to which you were already entitled, and (ii) that you have been paid for all time worked, have received all the leave, leaves of absence and leave benefits and protections for which you are eligible, and have not suffered any on-the-job injury for which you have not already filed a Claim. You affirm that all of the decisions of the Company Parties regarding your pay and benefits through the date of your execution of this Agreement were not discriminatory based on age, disability, race, color, sex, religion, national origin or any other classification protected by law. You affirm that you have not filed or caused to be filed, and are not presently a party to, a Claim against any of the Company Parties. You further affirm that you have no known workplace injuries or occupational diseases. You acknowledge and affirm that you have not been retaliated against for reporting any allegation of corporate fraud or other wrongdoing by any of the Company Parties, or for exercising any rights protected by law,

including any rights protected by the Fair Labor Standards Act, the Family Medical Leave Act or any related statute or local leave or disability accommodation laws, or any applicable state workers' compensation law. In addition, you acknowledge that you are knowingly and voluntarily waiving and releasing any rights you may have under the ADEA ("**ADEA Waiver**"). You also acknowledge that the consideration given for the ADEA Waiver is in addition to anything of value to which you were already entitled. You further acknowledge that you have been advised by this writing, as required by the ADEA, that: (a) your release and waiver herein does not apply to any rights or claims that arise after the date you sign this Agreement; (b) you should consult with an attorney prior to signing this Agreement; (c) you have twenty-one (21) days to consider this Agreement (although you may choose to voluntarily sign it sooner); (d) you have seven (7) days following the date you sign this Agreement to revoke it (by sending written revocation directly to Christopher G. Hayes, General Counsel for the Company; and (e) the Agreement will not be effective until the date upon which the revocation period has expired unexercised, which will be the eighth (8th) day after you sign this Agreement.

5. Return of Company Property. By the Separation Date, you agree to return to the Company all Company documents (and all copies thereof) and other Company property that you have had in your possession at any time, including, but not limited to, Company files, notes, drawings, records, business plans and forecasts, financial information, specifications, computer-recorded information, tangible property (including, but not limited to, computers), credit cards, entry cards, identification badges and keys; and, any materials of any kind that contain or embody any proprietary or confidential information of the Company (and all reproductions thereof). Please coordinate return of Company property with Christopher G. Hayes, General Counsel for the Company. **Receipt of the Severance Benefits described in Section 1 of this Agreement is expressly conditioned upon return of all Company property.**

6. Confidential Information, Non-Competition and Non-Solicitation Obligations. Both during and after your employment you acknowledge your continuing obligations under your Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement not to use or disclose any confidential or proprietary information of the Company and comply with your post-employment non-competition and non solicitation restrictions. The Company acknowledges that you will not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that: (A) is made (i) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. In addition, in the event that you file a lawsuit for retaliation by the Company for reporting a suspected violation of law, you may disclose the trade secret to your attorney and use the trade secret information in the court proceeding, if you: (A) file any document containing the trade secret under seal; and (B) do not disclose the trade secret, except pursuant to court order.

7. Confidentiality. The provisions of this Agreement will be held in strictest confidence by you and will not be publicized or disclosed in any manner whatsoever; *provided, however*, that: (a) you may disclose this Agreement to your immediate family; (b) you may disclose this Agreement in confidence to your attorney, accountant, auditor, tax preparer, and financial advisor; and (c) you may disclose this Agreement insofar as such disclosure may be required by law. Notwithstanding the foregoing, nothing in this Agreement shall limit your right to discuss your employment with the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, other federal government agency or similar state or local agency or to discuss the terms and conditions of your employment with others to the extent expressly permitted by Section 7 of the National Labor Relations Act.

8. Non-Disparagement. You and the Company agree not to disparage each other, and the other's attorneys, directors, managers, partners, employees, agents and affiliates, in any manner likely to be harmful to them or their business, business reputation or personal reputation; provided that you and the Company will respond accurately and fully to any question, inquiry or request for information when required by legal process. For purposes of this Section 8, the obligations of the Company shall apply only to the senior management team and the members of the Board of Directors. Notwithstanding the foregoing, nothing in this Agreement shall limit your right to voluntarily communicate with the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, other federal government agency or similar state or local agency or to discuss the terms and conditions of your employment with others to the extent expressly permitted by Section 7 of the National Labor Relations Act.

9. No Admission. This Agreement does not constitute an admission by you or by the Company of any wrongful action or violation of any federal, state, or local statute, or common law rights, including those relating to the provisions of any law or statute concerning employment actions, or of any other possible or claimed violation of law or rights.

10. Breach. You agree that upon any material breach of this Agreement you will forfeit all amounts paid or owing to you under this Agreement. Further, you acknowledge that it may be impossible to assess the damages caused by your violation of the terms of Sections 5, 6, 7 and 8 of this Agreement and further agree that any threatened or actual violation or breach of those Sections of this Agreement will constitute immediate and irreparable injury to the Company. You therefore agree that, in addition to any and all other damages and remedies available to the Company upon your breach of this Agreement, the Company shall be entitled to an injunction to prevent you from violating or breaching this Agreement.

11. Miscellaneous. This Agreement is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. This Agreement may not be modified or amended except in a writing signed by both you and a duly authorized officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure to the benefit of both you and the Company, their heirs, successors and assigns. If any provision of this Agreement is determined to be invalid or unenforceable, in whole or in part, this determination will not affect any other provision of this Agreement and the provision in question will be modified by the court so as to be rendered enforceable. This Agreement will be deemed to have been entered into and will be construed and enforced in accordance with the laws of the Commonwealth of Pennsylvania as applied to contracts made and to be performed entirely within the Commonwealth of Pennsylvania.

VERRJCA PHARMACEUTICALS INC.

By: _____
Name:
Title:

I UNDERSTAND THAT THIS AGREEMENT INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS, EVEN THOSE UNKNOWN CLAIMS THAT IF KNOWN BY ME, WOULD AFFECT MY DECISION TO ACCEPT THIS AGREEMENT.

Patrick Burnett, MD, PhD, FAAD

213699052

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Verrica Pharmaceuticals Inc.:

We consent to the incorporation by reference in the registration statements (Nos. 333-226153 and 333-231265) on Form S-8 of Verrica Pharmaceuticals Inc. of our report dated March 13, 2020, with respect to the balance sheets of Verica Pharmaceuticals Inc. as of December 31, 2019 and 2018, and the related statements of operations and comprehensive loss, convertible preferred stock and stockholders' equity (deficit) and cash flows for the years then ended, and the related notes, which report appears in the December 31, 2019 annual report on Form 10-K of Verrica Pharmaceuticals Inc.

/s/ KPMG LLP

Philadelphia, Pennsylvania
March 13, 2020

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Ted White, certify that:

1. I have reviewed this Annual Report on Form 10-K for the year ended December 31, 2019 of Verrica Pharmaceuticals Inc. (the “registrant”);
 2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
 3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
 4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and
 - (c) 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.
-

/s/ Ted White

Ted White

President and Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, A. Brian Davis, certify that:

1. I have reviewed this Annual Report on Form 10-K for the year ended December 31, 2019 of Verrica Pharmaceuticals Inc. (the “registrant”);
 2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
 3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
 4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and
 - (c) 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.
-

/s/ A. Brian Davis
A. Brian Davis
Chief Financial Officer
(Principal Financial Officer)

**CERTIFICATIONS OF
PRINCIPAL EXECUTIVE OFFICER AND PRINCIPAL FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, (the "Exchange Act") and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), Ted White, President and Chief Executive Officer of Verrica Pharmaceuticals Inc. (the "Company"), and A. Brian Davis, Chief Financial Officer of the Company, each hereby certifies that, to the best of his knowledge:

1. The Company's Annual Report on Form 10-K for the year ended December 31, 2019, to which this Certification is attached as Exhibit 32.1 (the "Annual Report"), fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and
2. The information contained in the Annual Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

IN WITNESS WHEREOF, the undersigned have set their hands hereto as of the 13th day of March, 2020.

/s/ Ted White

Ted White
President and Chief Executive Officer
(Principal Executive Officer)

/s/ A. Brian Davis

A. Brian Davis
Chief Financial Officer
(Principal Financial Officer)

- * This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Exchange Act (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.

