Filed Pursuant to Rule 424(b)(4)
Registration No. 333-225104

PROSPECTUS

5,000,000 Shares

Common Stock

This is Verrica Pharmaceuticals Inc.'s initial public offering. We are selling 5,000,000 shares of our common stock.

The public offering price for our common stock is $15.00 per share. Currently, no public market exists for the shares. Our common stock has been approved for listing on The Nasdaq Global Market under the symbol "VRCA."

We are an "emerging growth company" as defined under the federal securities laws and, as such, have elected to comply with certain reduced public company reporting requirements.

Investing in the common stock involves risks that are described in the "Risk Factors" section beginning on page 12 of this prospectus.

	Per Share	Total
Public offering price	$15.00	$75,000,000
Underwriting discount(1)	$1.05	$5,250,000
Proceeds, before expenses, to us	$13.95	$69,750,000

(1) We refer you to "Underwriting" beginning on page 151 for additional information regarding underwriting compensation.

The underwriters may also exercise their option to purchase up to an additional 750,000 shares from us, at the public offering price, less the underwriting discount, for 30 days after the date of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

Certain of our existing stockholders, including entities affiliated with certain of our directors, have agreed to purchase an aggregate of 1,500,000 shares of our common stock in this offering at the initial public offering price per share. The underwriters will receive the same underwriting discount on the shares purchased by these persons or entities as they will on any other shares sold to the public in this offering.

The shares will be ready for delivery on or about June 19, 2018.

BofA Merrill Lynch **Jefferies** **Cowen**

The date of this prospectus is June 14, 2018.

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Neither we nor the underwriters have authorized anyone to provide you with information other than that contained in this prospectus or any free writing prospectus prepared by or on behalf of us or to which we have referred you. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We and the underwriters are offering to sell, and seeking offers to buy, common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date on the front cover page of this prospectus, or other earlier date stated in this prospectus, regardless of the time of delivery of this prospectus or of any sale of our common stock.

For investors outside of the United States: no action is being taken in any jurisdiction outside the United States to permit a public offering of our common stock or possession or distribution of this prospectus in that jurisdiction. Persons who come into possession of this prospectus in jurisdictions outside the United States are required to inform themselves about and to observe any restrictions as to this offering and the distribution of this prospectus applicable to that jurisdiction.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus. This summary does not contain all of the information you should consider before investing in our common stock. You should read this entire prospectus carefully, especially the "Risk Factors" section beginning on page 12 and our financial statements and the related notes appearing at the end of this prospectus, before making an investment decision.

As used in this prospectus, unless the context otherwise requires, references to "we," "us," "our," "the company" and "Verrica Pharmaceuticals" refer to Verrica Pharmaceuticals Inc.

Overview

We are a clinical-stage medical dermatology company focused on identifying, developing and commercializing innovative pharmaceutical products for the treatment of skin diseases with significant unmet needs. 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.

We have recently initiated two randomized, double-blind, multicenter, placebo-controlled Phase 3 clinical trials of VP-102 for the treatment of molluscum, CAMP-1 and CAMP-2, and expect to report top-line results from these trials in the first half of 2019. If the results from these trials are favorable, we plan to submit a new drug application, or NDA, to the FDA for VP-102 for the treatment of molluscum in 2019. CAMP-1 is being conducted under a special protocol assessment, or SPA, with the FDA. We are also enrolling patients in a Phase 2 clinical trial of VP-102 for the treatment of common warts. We expect to report top-line results from this trial in the first half of 2019. We retain exclusive, royalty-free rights to our product candidates across all indications.

Our management team has extensive pharmaceutical industry experience ranging from drug development through commercialization, having launched more than 50 products collectively. These products include dermatology products such as Lamisil, Elidel, Acticlate and Hemangeol, and products having multi-billion dollar peak annual sales such as Nexium, Seroquel, Crestor and Diovan. The members of our management team have held senior leadership positions at a number of pharmaceutical and biotechnology companies, including Novartis, Aqua Pharmaceuticals (acquired by Almirall), AstraZeneca and Pierre Fabre. We believe that the breadth of experience and successful track record of our management team, combined with our broad network of established relationships with leaders in the industry and medical community, provide us with unique insights into drug development and commercialization. Furthermore, we have been supported by a group of leading biotech investors, including PBM Capital, Perceptive and OrbiMed.

We 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. As of March 31, 2018, we have

nationalized three patent applications for utility patents. In addition, we have four pending U.S. provisional applications and one patent application for a design patent. Excluding any patent term adjustment and patent term extension, 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.

Our Product Candidates

VP-102 for the Treatment of Molluscum

We are initially developing VP-102 for the treatment of molluscum. 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. Molluscum has a 5% to 11% prevalence rate in children and 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 with the following benefits to address the shortcomings associated with current treatments for molluscum:

- **Non-invasive and minimal to no pain upon application.** VP-102 is designed to result in little to no pain upon application and to cause the clearance of the molluscum lesions generally without scarring.

- **GMP-compliant product with improved stability and purity.** VP-102 will be manufactured in accordance with GMP standards using an API that is greater than 99% pure. Furthermore, the API is packaged in a sealed glass ampule, which enhances product stability and improves consistency in product concentration since evaporation is minimized.

- **Potential to increase physician efficiency.** Our proprietary applicator in VP-102 enables more precise administration compared to traditional compounded cantharidin formulations, which are typically applied via the wooden stick part of a cotton-tipped swab. VP-102 also contains a visualization agent enabling practitioners to see which lesions have been treated.

- **Potential to be the first FDA-approved product for the treatment of molluscum.** In contrast to compounded cantharidin, VP-102, if approved, will be eligible for drug reimbursement.

We believe VP-102 has the potential to become the standard of care in the underserved and undertreated primarily pediatric indication of molluscum.

We have completed one Phase 2 clinical trial of our proprietary topical solution of cantharidin administered with the wooden stick part of a cotton-tipped swab, which is the method of application historically used with compounded cantharidin. We are conducting another Phase 2 clinical trial of our proprietary topical solution of cantharidin administered through our proprietary applicator, which we collectively refer to as VP-102, for the treatment of molluscum. In these trials, our proprietary topical solution of cantharidin has been observed to be well tolerated, with no serious adverse events or unexpected treatment related adverse events to date.

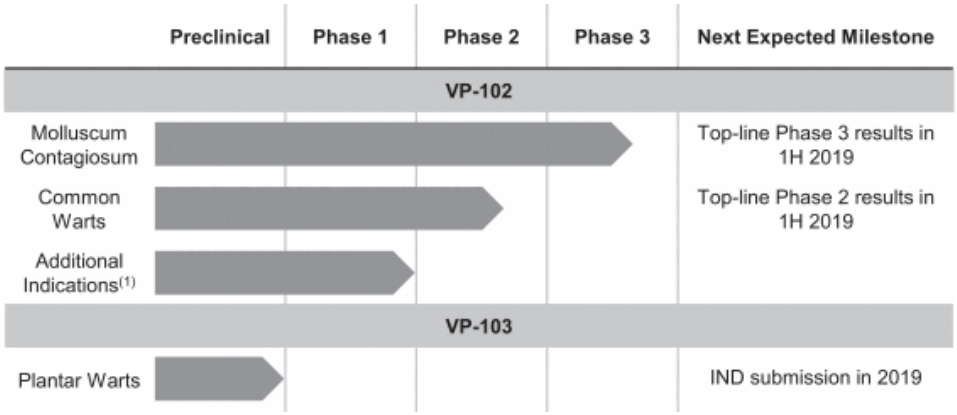
VP-102 for the Treatment of Common Warts

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 $1.0 billion. 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 drugs 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. We are currently enrolling patients in a Phase 2 clinical trial of VP-102 for the treatment of common warts. We expect to report top-line results from this trial in the first half of 2019.

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 annual patient visits for all types of warts are for the treatment of plantar warts. We expect to conduct IND-enabling studies for VP-103 and to submit an investigational new drug application, or IND, to the FDA by the end of 2019. Pending final formulation and IND clearance, we expect that we will be able to substantially leverage our experience with VP-102 to initiate Phase 2 trials directly in target patients with plantar warts.

The following table summarizes our product candidates:



(1) Additional indications under consideration include subungual warts, flat warts, actinic keratosis, genital warts and seborrheic keratosis.

Our Strategy

Our strategy is to identify, develop and commercialize innovative medical dermatology solutions for the treatment of skin diseases with significant unmet needs. The key components of our strategy are to:

- **Complete the development and obtain FDA approval of VP-102 for the treatment of molluscum.** In the first quarter of 2018, we initiated two randomized, double-blinded, multicenter, placebo-controlled Phase 3 clinical trials of VP-102 for the treatment of molluscum, CAMP-1 and CAMP-2. CAMP-1 is being conducted under an SPA with the FDA. We believe VP-102 has the potential to become the standard of care in the underserved and undertreated primarily pediatric indication of molluscum. If the results of our Phase 3 clinical trials are favorable, we intend to submit an NDA for VP-102 for the treatment of molluscum to the FDA in 2019.

- **Commercialize VP-102 through the establishment of a specialized sales organization.** We intend to commercialize VP-102, if approved, by building a specialized sales organization in the United States 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 9,000 dermatologists in the United States with the highest potential for using VP-102. In the future, we may seek to develop and commercialize VP-102 for additional geographic regions, independently or with a strategic partner.

- **Advance the development and obtain FDA approval of VP-102 for the treatment of common warts.** We are also developing VP-102 for the treatment of common warts and expect to report top-line results from our Phase 2 clinical trial of VP-102 for the treatment of common warts in the first half of 2019. If the results of our Phase 2 clinical trial are favorable, we intend to schedule with the FDA an end of Phase 2 meeting in the second half of 2019.

- **Pursue additional development activities for our cantharidin-based product candidates.** We are currently evaluating and prioritizing other potential indications for our proprietary topical

solutions of cantharidin such as plantar warts, flat warts, actinic keratoses, genital warts, subungual warts, and seborrheic keratoses. Specifically, we intend to conduct IND-enabling studies and submit an IND to the FDA for our second product candidate, VP-103, for the treatment of plantar warts in 2019. Additionally, we are developing a process for production of fully-synthetic cantharidin.

- **Build a diversified multi-asset pipeline of novel therapies.** We intend to employ a value-driven strategy to identify, acquire, develop and commercialize product candidates for diseases that are treated by dermatologists. We intend to focus on product candidates that we believe have attractive profiles in early clinical testing and that can advance quickly and efficiently into late-stage development. As the dermatology landscape continues to evolve, we believe we can leverage the expertise and experience of our management team to be at the forefront of and capitalize on such opportunities.

Our Relationship with PBM

Paul B. Manning, who controls PBM Capital, and certain entities affiliated with Mr. Manning, beneficially own 58.4% of our common stock prior to this offering, based on the number of shares outstanding as of March 31, 2018, and following this offering, two of our directors will be affiliated with PBM Capital. In addition, an entity affiliated with PBM Capital provides us with certain business development, operations, scientific and technical, contract, accounting and back office support services pursuant to a services agreement. See "Certain Relationships and Related Party Transactions—Services Agreement with PBM Capital Group, LLC."

Risks Associated with Our Business

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

- We have incurred significant losses since our inception. We expect to incur losses over the next several years and may never achieve or maintain profitability.
- Even if this offering is successful, 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.
- 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 have only one product candidate, VP-102, for the treatment of molluscum and common 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 and/or common 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 rely on a third party for our raw material in VP-102, and if we encounter any 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.
- We face substantial competition, including from compounded cantharidin products that may compete with VP-102, 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 success of VP-102 for the treatment of molluscum and common warts will depend significantly on continued coverage and adequate reimbursement or the willingness of patients to pay for these procedures. Obtaining coverage and adequate reimbursement for our products, if approved for marketing, 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.

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

- We do not currently have any issued patents. Cantharidin is a naturally occurring compound and therefore the composition of matter for the chemical structure of cantharidin itself is not eligible for patent protection. 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.

- 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.

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

Implications of Being an Emerging Growth Company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. An emerging growth company may take advantage of relief from certain reporting requirements and other burdens that are otherwise applicable generally to public companies. These provisions include:

- reduced obligations with respect to financial data, including presenting only two years of audited financial statements and only two years of selected financial data in this prospectus;

- an exception from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended, or the Sarbanes-Oxley Act;

- reduced disclosure about our executive compensation arrangements in our periodic reports, proxy statements and registration statements; and

- exemptions from the requirements of holding non-binding advisory votes on executive compensation or golden parachute arrangements.

We may take advantage of these provisions for up to five years or until such earlier time that we no longer qualify as an emerging growth company. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the closing of this offering, (b) in which we have more than $1.07 billion in annual gross revenues or (c) we are deemed to be a "large accelerated filer" under the rules of the U.S. Securities and Exchange Commission, or SEC, 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 of non-convertible debt during the prior three-year period. We may choose to take advantage of some but not all of these reduced reporting burdens. For example, we may take advantage of the exemption from auditor attestation on the effectiveness of our internal control over financial reporting. To the extent that we take advantage of these reduced reporting burdens, the information that we provide stockholders may be different than you might obtain from other public companies in which you hold equity interests.

In addition, under 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.

Our 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. Our website address is www.verrica.com. The information contained on, or accessible through, our website is not incorporated by reference into this prospectus, and you should not consider any information contained in, or that can be accessed through, our website as part of this prospectus or in deciding whether to purchase our common stock.

We own various U.S. federal trademark applications and unregistered trademarks, including our company name. All other trademarks or trade names referred to in this prospectus are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus are referred to without the symbols ® and ™, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

THE OFFERING	
Common stock offered by us	5,000,000 shares
Common stock to be outstanding after this offering	24,946,371 shares
Option to purchase additional shares	The underwriters have a 30-day option to purchase a maximum of 750,000 additional shares of common stock from us at the public offering price, less underwriting discounts and commissions on the same terms as set forth in this prospectus.
Use of proceeds	We estimate that the net proceeds from the sale of the shares of common stock in this offering will be approximately $68.0 million, or approximately $78.4 million if the underwriters exercise their option to purchase additional shares in full, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use the net proceeds from this offering, together with our existing cash and cash equivalents, to complete our planned clinical trials, seek regulatory approval and fund the commercial launch, if approved, of VP-102 for the treatment of molluscum, to advance the clinical development of VP-102 for the treatment of common warts, as well as for working capital and other general corporate purposes, including to develop VP-103 and VP-102 for additional indications and to pursue our strategy to develop, in-license or acquire additional product candidates. See "Use of Proceeds" beginning on page 63.
Reserved share program	At our request, the underwriters have reserved for sale, at the initial public offering price, up to 5% of the shares offered by this prospectus for sale to some of our directors, officers, employees, business associates and related persons. If these persons purchase reserved shares it will reduce the number of shares available for sale to the general public. Any reserved shares that are not so purchased will be offered by the underwriters to the general public on the same terms as the other shares offered by this prospectus.
Risk factors	See "Risk Factors" beginning on page 12 and the other information included in this prospectus for a discussion of factors you should consider carefully before deciding to invest in our common stock.
Nasdaq Global Market symbol	VRCA

The number of shares of our common stock to be outstanding after this offering is based on 19,946,371 shares of our common stock as of March 31, 2018, after giving effect to the conversion of shares of our convertible preferred stock outstanding as of March 31, 2018 into an aggregate of 16,246,872 shares of our common stock immediately prior to the closing of this offering, and excludes:

- 1,156,048 shares of our common stock issuable upon the exercise of stock options outstanding under our 2013 equity incentive plan as of March 31, 2018, at a weighted average exercise price of $6.13 per share;
- 87,514 shares of our common stock issuable upon the exercise of stock options granted under our 2013 equity incentive plan subsequent to March 31, 2018, with an exercise price of $8.72 per share; and
- 3,738,199 shares of our common stock reserved for future issuance under our 2018 equity incentive plan, which will become effective upon the pricing of this offering, as well as any automatic increases in the number of shares of common stock reserved for future issuance under this plan (of which, we will grant non-statutory stock options to each of our eligible directors to purchase 17,502 shares of common stock upon the pricing of this offering at an exercise price equal to the initial public offering price).

Unless otherwise indicated, this prospectus reflects and assumes the following:

- the automatic conversion of all outstanding shares of our preferred stock into 16,246,872 shares of our common stock, which will occur immediately prior to the closing of this offering;
- a 1.714-for-one reverse stock split of our common stock effected on June 4, 2018;
- the filing and effectiveness of our amended and restated certificate of incorporation upon the closing of this offering;
- no exercise of the outstanding options described above; and
- no exercise by the underwriters of their option to purchase additional shares of our common stock.

Certain of our existing stockholders, including entities affiliated with certain of our directors, have agreed to purchase an aggregate of 1,500,000 shares of our common stock in this offering at the initial public offering price per share. The underwriters will receive the same underwriting discount on the shares purchased by these persons or entities as they will on any other shares sold to the public in this offering.

SUMMARY FINANCIAL DATA

You should read the following summary financial data together with our financial statements and the related notes thereto included elsewhere in this prospectus and the "Selected Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" sections of this prospectus. We have derived the statement of operations data for the years ended December 31, 2016 and 2017 from our audited financial statements appearing at the end of this prospectus. The statement of operations data for the three months ended March 31, 2017 and 2018 and the balance sheet data as of March 31, 2018 have been derived from our unaudited interim financial statements included elsewhere in this prospectus and have been prepared on the same basis as the audited financial statements. In the opinion of management, the unaudited data reflects all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the financial information in those statements. Our historical results are not necessarily indicative of the results that should be expected in the future and the results for the three months ended March 31, 2018 are not necessarily indicative of the results to be expected for the full year ending December 31, 2018 or any other future period.

	Year Ended December 31,		Three Months Ended March 31,	
	2016	2017	2017	2018
	(in thousands, except share and per share data)			
Statement of Operations Data:				
Operating expenses:				
Research and development	$ 1,709	$ 3,730	$ 515	$ 929
General and administrative	204	727	55	986
Total operating expenses	1,913	4,457	570	1,915
Loss from operations	(1,913)	(4,457)	(570)	(1,915)
Other (expense) income	—	(2)	—	41
Net loss	(1,913)	(4,459)	(570)	(1,874)
Deemed dividend on Series A preferred stock	—	(5,300)	—	—
Net loss attributable to common stockholders	$ (1,913)	$ (9,759)	$ (570)	$ (1,874)
Net loss per share, basic and diluted	$ (0.52)	$ (1.21)	$ (0.15)	$ (0.51)
Net loss per share attributable to common stockholders, basic and diluted	$ (0.52)	$ (2.64)	$ (0.15)	$ (0.51)
Weighted average common shares outstanding, basic and diluted	3,685,084	3,699,158	3,698,190	3,699,499
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)(1)		$ (0.57)		$ (0.09)
Pro forma weighted average common shares outstanding, basic and diluted (unaudited)(1)		17,258,642		19,946,371

(1) See note 2 to our financial statements included elsewhere in this prospectus for an explanation of the method used to calculate the pro forma based and diluted net loss per common share.

The following table presents our summary balance sheet data as of March 31, 2018:

- on an actual basis;

- on a pro forma basis to give effect to the conversion of all outstanding shares of our convertible preferred stock into an aggregate of 16,246,872 shares of our common stock, which will occur immediately prior to the closing of this offering; and

- on a pro forma as adjusted basis to give further effect to our sale of 5,000,000 shares of common stock in this offering at the initial public offering price of $15.00 per share after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

	As of March 31, 2018		
	Actual	Pro Forma	Pro Forma As Adjusted
		(in thousands)	
Balance Sheet Data:			
Cash and cash equivalents	$27,485	$ 27,485	$ 95,435
Working capital (1)	27,257	27,257	95,207
Total assets	29,396	29,396	97,346
Convertible preferred stock	36,501	—	—
Total stockholders' (deficit) equity	(8,753)	27,748	95,698

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

RISK FACTORS

Investing in our common stock involves a high degree of risk. Before you invest in our common stock, you should carefully consider the following risks, as well as general economic and business risks, and all of the other information contained in this prospectus. Any of the following risks could have a material adverse effect on our business, operating results and financial condition and cause the trading price of our common stock to decline, which would cause you to lose all or part of your investment. When determining whether to invest, you should also refer to the other information contained in this prospectus, including our financial statements and the related notes thereto.

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 medical dermatology company with limited operating history. Since inception, we have incurred significant net losses. We incurred net losses of $1.9 million and $4.5 million for the years ended December 31, 2016 and 2017, respectively, and $1.9 million for the three months ended March 31, 2018. As of March 31, 2018, we had an accumulated deficit of $14.3 million. Since inception, we have financed our operations with $36.9 million in gross proceeds raised in 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 one Phase 2 clinical trial in molluscum with our proprietary cantharidin formulation, which we use in VP-102, and we have one ongoing Phase 2 clinical trial and have initiated two Phase 3 clinical trials 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 are enrolling patients in a Phase 2 clinical trial for this indication. We also intend to develop our second cantharidin-based product candidate, VP-103, for the treatment of plantar warts. 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 trials evaluating VP-102 for the treatment of molluscum and common warts as well as initiate and complete additional clinical trials, as needed;
- pursue regulatory approvals for VP-102 for the treatment of molluscum, and eventually for the treatment of common 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.

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. A decline in the value of our company could also cause you to lose all or part of your investment.

Even if this offering is successful, 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 complete our Phase 2 clinical trial of VP-102 for the treatment of molluscum, continue enrolling patients in and complete our Phase 3 clinical trials of VP-102 for the treatment of molluscum, 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 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 we do not expect to be commercially available for a number of years, if at all. 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. We also expect an increase in our expenses associated with creating additional infrastructure to support operations as a public company.

As of March 31, 2018, we had cash and cash equivalents of $27.5 million. We believe that the anticipated net proceeds from this offering, together with our existing cash and cash equivalents, will enable us to fund our operating expenses and capital expenditure requirements for at least the next 24 months. 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 ongoing Phase 2 clinical trial and recently initiated two Phase 3 clinical trials of VP-102 for the treatment of molluscum;
- the progress and results of our Phase 2 clinical trial and any other additional clinical trials evaluating VP-102 as a potential treatment for common warts;
- the scope, progress, results and costs of preclinical development, laboratory testing and clinical trials for VP-103 and any other indications of VP-102 we may decide to pursue;
- 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 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 and/or common warts. If we receive regulatory approval for VP-102 for either indication, 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, including purchasers of common stock in this offering, 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.

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. To date, we have completed one Phase 2 clinical trial for the treatment of molluscum using our proprietary cantharidin formula, which we use in VP-102, have one ongoing Phase 2 clinical trial using VP-102 for the treatment of molluscum, have initiated two Phase 3 clinical trials using VP-102 for the treatment of molluscum, and are enrolling patients in a Phase 2 clinical trial using VP-102 for the treatment of common warts. We have not yet demonstrated our ability to successfully complete later-stage clinical trials, 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.

Risks Related to the Development of Our Product Candidates

We have only one product candidate, VP-102, for the treatment of molluscum and common 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 and/or common 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. To date, we have completed one Phase 2 clinical trial for the treatment of molluscum using our proprietary cantharidin formula, which we use in VP-102, have one ongoing Phase 2 clinical trial using VP-102 for the treatment of molluscum, have initiated two Phase 3 clinical trials using VP-102 for the treatment of molluscum, and are enrolling patients in a Phase 2 clinical trial using VP-102 for the treatment of common warts. We also intend to develop our second product candidate, VP-103, for the treatment of plantar warts, but we have not conducted any clinical trials for VP-103. We have not completed the development 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 and common warts. Our ability to generate revenue from our product candidates, which we do not expect will occur for a number of years, if ever, 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 our NDA for VP-102 for the treatment of molluscum or common warts or any other product candidate, the NDA 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 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.

If the FDA does not conclude that VP-102 satisfies the requirements for the Section 505(b)(2) regulatory approval pathway, or if the requirements under Section 505(b)(2) are not as we expect, the approval pathway for VP-102 may take significantly longer, cost significantly more and entail significantly greater complications and risks than anticipated, and in either case, may not be successful.

We may seek FDA approval through the Section 505(b)(2) regulatory pathway for VP-102 and may pursue that pathway for potential future product candidates. The Drug Price Competition and Patent Term Restoration Act of 1984, also known as the Hatch-Waxman Amendments, added Section 505(b)(2) to the Federal Food, Drug, and Cosmetic Act, or the FDCA. Section 505(b)(2) permits the filing of an NDA where at least some of the information required for approval comes from studies not conducted by or for the applicant and for which the applicant has not obtained a right of reference. We may seek to rely on published literature in support of the safety and effectiveness of VP-102.

If we seek, and if the FDA does not allow us to pursue, the Section 505(b)(2) regulatory pathway as anticipated, we may need to conduct additional clinical trials, provide additional data and information and meet additional standards for regulatory approval. If this were to occur, the time and financial resources required to obtain FDA approval for our product candidates, and complications and risks associated with the development of our product candidates, would likely substantially increase. We may need to obtain additional funding, which could result in significant dilution to the ownership interests of our then existing stockholders to the extent we issue equity securities or convertible debt. We cannot assure you that we would be able to obtain such additional financing on terms acceptable to us, if at all. Moreover, inability to pursue the Section 505(b)(2) regulatory pathway could result in competitive products reaching the market before our product candidates, which could impact our competitive position and prospects. Even if we are allowed to pursue the Section 505(b)(2) regulatory pathway, we cannot assure you that our product candidates will receive the requisite approvals for commercialization, or that a competitor would not obtain approval first along with subsequent market exclusivity from the FDA, thereby delaying potential approval of our product.

In addition, notwithstanding the approval of a number of products by the FDA under Section 505(b)(2), some pharmaceutical companies and others have objected to the FDA's interpretation of Section 505(b)(2). If the FDA's interpretation of Section 505(b)(2) is successfully challenged, the FDA may be required to change its Section 505(b)(2) policies and practices, which could delay or even prevent the FDA from approving any NDA that we may submit under Section 505(b)(2).

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 have not completed all clinical trials required for the approval of any of our product candidates. Based on the feedback from our meeting with the FDA in September 2017, we recently initiated two Phase 3 clinical trials of VP-102 for the treatment of molluscum, one of which is being conducted under an SPA with the FDA. We are also enrolling patients in a Phase 2 clinical trial of VP-102 for the treatment of common warts. We cannot assure you that any clinical trial that we are 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 intend to further amend the trial protocol in order to add a second cohort once we have established the desired treatment frequency for the trial. 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. Many of the parents of patients who end up receiving placebo may perceive that their children enrolled in the trial are not receiving VP-102, and they may decide to withdraw their children from our clinical trials to pursue other alternative therapies rather than continue the trial with the perception that their children are receiving placebo.

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 an 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 recently initiated two Phase 3 clinical trials of VP-102 for the treatment of molluscum, one of which is being conducted under an 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 an SPA must be clearly documented in an SPA letter or the minutes of a meeting between the sponsor and the FDA.

However, an 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, an 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 an 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 planned Phase 3 clinical trial under the SPA will succeed, 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 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. The determination whether a combination product requires a single marketing application

or two separate marketing applications for each component is made by the FDA on a case-by-case basis. Although a single marketing application may be sufficient for the approval of a combination product, the FDA may determine that separate marketing applications are necessary. This determination could significantly increase the resources and time required to bring a particular combination product to market. 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 and commercialization of our product candidate due to regulatory timing constraints and uncertainties in the product development and approval process, 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 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 and common warts. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications for VP-102 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. VP-102 is currently our only product candidate. 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 persuade adequate numbers of physicians to prescribe 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 companies conducting late-stage clinical trials for common warts, including Aclaris Therapeutics and Cutanea Life Sciences. In addition, other drugs have been and may continue to be used off label as treatment for molluscum and common 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 2018, the FDA released a draft 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 proposed in the draft 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 draft 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 cantharadin 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 submit and 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 be 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 provided for a 0.5% annual increase in payment rates under the Medicare Physician Fee Schedule through 2019, but no annual update from 2020 through 2025. MACRA also introduced a merit based incentive bonus program for Medicare physicians beginning in 2019. At this time, it is unclear how the introduction of the merit based incentive 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 $20 million in product liability insurance coverage in the aggregate, with a per incident limit of $20 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 to conduct our Phase 2 and Phase 3 clinical trials of VP-102 for the treatment of molluscum, our Phase 2 clinical trial of VP-102 for the treatment of common warts, 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 do not currently have a supply agreement in place for the long-term supply of cantharidin. We currently rely on a third party to supply our raw material used in VP-102 on a purchase order by purchase order basis, and if we encounter any 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 do not currently have a supply agreement in place with our existing supplier or any agreements with any other parties for redundant supply or for additional sources of naturally-sourced cantharidin. While we have acquired a quantity of cantharidin that we believe would be sufficient to take us through the commercial launch of VP-102 for the treatment of molluscum, if it receives marketing approval, there are no assurances that we will be able to enter into a supply agreement with our existing supplier or any other supplier of naturally-sourced cantharidin. Even if we were to enter into such a supply agreement, 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 or economic challenges our existing supplier faces, whether in the ordinary course or not, could impair its ability to meet our cantharidin supply needs. Accordingly, there is a risk that supplies of our product may be significantly delayed by or may become unavailable 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 are working to develop a process for manufacturing cantharidin synthetically, there is risk that we will be unable to do so or that we will be unable to produce a sufficient quantity of synthetically derived cantharidin to meet our needs and, even if we are ultimately able to produce synthetically derived cantharidin in quantities that are sufficient to meet our needs, we cannot predict when we will be able to do so. If we are unable to develop a process for manufacturing cantharidin synthetically and on a commercial scale, we will be forced to continue to rely on naturally sourced cantharidin.

Any 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.

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 after we submit our NDA 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 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 manufacturing and assembly of our single-use precision applicator has been done using a manual process. In order to manufacture our applicator on a commercial scale, we will need to develop an automated process successfully and on a timely basis. 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 do not own any issued patents, and the patent applications that we own may fail to result in 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 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 applications may be significant with respect to VP-102, when looking at the ability of the patents we have applied for to block competition, the protection offered by the patents we have applied for may be, to some extent, more limited than the protection provided by a patent claiming the composition of matter of an entirely new chemical structure 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, 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 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 future patents;
- we or future collaborators might not have been the first to make the inventions covered by our 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 are subject, directly or indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, health information privacy and security laws, and other healthcare laws and regulations. If we 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 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. 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 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, 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 its implementing regulations, which imposes 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 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 teaching hospitals and applicable manufacturers; 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 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, a product may not be promoted for uses that are not approved by the FDA or such other regulatory agencies as reflected in the product's approved labeling. If we 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 requested 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 Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug.

Some of the provisions of the ACA have yet to be implemented, and there have been 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 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". Additionally, on January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain ACA-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. 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." We continue to evaluate the potential impact of the ACA and its possible repeal or replacement on 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 2027 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 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. While any proposed measures will require authorization through additional legislation to become effective, Congress and the 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, Linda Palczuk, our Chief Operating Officer, Joe Bonaccorso, our Chief Commercial Officer, Chris Degnan, our Chief Financial Officer, Patrick Burnett, our Chief Medical 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 May 15, 2018, we had 11 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 this Offering, Ownership of Our Common Stock and Our Status as a Public Company

An active trading market for our common stock may not develop and you may not be able to resell your shares of our common stock at or above the initial offering price, if at all.

Prior to this offering, there has been no public market for our common stock. The initial public offering price for our common stock has been determined through negotiations with the underwriters and may not be indicative of the price at which our common stock will trade after the closing of this offering. Although our common stock has been approved for listing on The Nasdaq Global Market, an active trading market for our shares may never develop or be sustained following this offering. If an active market for our common stock does not develop or is not sustained, it may be difficult for you to sell shares you purchased in this offering 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 molluscum and common 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;
- 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. We do not currently have and may never obtain research

coverage by equity research analysts. Equity research analysts may elect not to provide research coverage of our common stock after this offering, and such lack of research coverage may adversely affect the market price of our common stock. In the event we do 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.

If you purchase shares of our common stock in this offering, you will suffer immediate dilution of your investment.

The initial public offering price of our common stock is substantially higher than the net tangible book value per share of our common stock. Therefore, if you purchase shares of our common stock in this offering, you will pay a price per share that substantially exceeds our pro forma as adjusted net tangible book value per share after this offering. Based on the initial public offering price of $15.00 per share, you will experience immediate dilution of $11.16 per share, representing the difference between our pro forma as adjusted net tangible book value per share after this offering and the initial public offering price.

In addition, as of March 31, 2018, we had outstanding stock options to purchase an aggregate of 1,156,048 shares of common stock at a weighted average exercise price of $6.13 per share. To the extent these outstanding options are exercised, there will be further dilution to investors in this offering.

A significant portion of our total outstanding shares are restricted from immediate resale but may be sold into the market in the near future. This could cause the market price of our common stock to drop significantly, even if our business is doing well.

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

Upon the closing of this offering, we will have outstanding 24,946,371 shares of common stock, after giving effect to the conversion of our convertible preferred stock outstanding as of March 31, 2018 into 16,246,872 shares of our common stock, and assuming no exercise of outstanding options. Of these shares, the 5,000,000 shares sold in this offering will be freely tradable and substantially all of the 19,946,371 additional shares of common stock will be available for sale in the public market beginning 180 days after the date of this prospectus following the expiration of lock-up agreements between some of our stockholders and the underwriters. Merrill Lynch, Pierce, Fenner & Smith Incorporated and Jefferies LLC may release these stockholders from their lock-up agreements with the underwriters at any time and without notice, which would allow for earlier sales of shares in the public market.

In addition, promptly following the closing of this offering, we intend to file one or more registration statements on Form S-8 under the Securities Act registering the issuance of approximately 3,738,199 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 these registration statements on Form S-8 will be 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.

Additionally, after this offering, the holders of an aggregate of 19,350,595 shares of our common stock, or their transferees, will have rights, subject to some conditions, to require us to file one or more registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. If we were to register the resale of these shares, they could be freely sold in the public

market. If these additional shares are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

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 as they will be in effect following this offering 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 will have 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 will also contain other provisions that could have an anti-takeover effect, including:

- only one of our three classes of directors will be elected each year;
- stockholders will not be entitled to remove directors other than by a 66 2/3% vote and only for cause;
- stockholders will not be 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 new investors from influencing significant corporate decisions.

Upon the closing of this offering, 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, will, in the aggregate, beneficially own 66.9% of our outstanding common stock. As a result, these persons, acting together, would be able to 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. In addition, if our principal stockholders and their affiliated entities and certain of our directors purchase all of the shares they have agreed to purchase in this offering, the number of shares of our common stock beneficially owned by our executive officers, directors and current beneficial owners of 5% or more of our common stock and their respective affiliates will, in the aggregate, increase to 72.9% of our common stock.

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 price at which shares are being sold in

this offering 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 in this prospectus;
- 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) following the fifth anniversary of the closing of this offering, (b) in which we have total annual gross revenue of at least $1.07 billion, or (c) in which we are deemed to be a large accelerated filer, which 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 maintain proper and effective internal controls, our ability to produce accurate financial statements on a timely basis could be impaired.

After the closing of this offering, we will be 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 ending December 31, 2019, we must 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 will require that we incur substantial additional professional fees and internal costs to expand our accounting and finance functions and that we expend significant management efforts. Prior to this offering, we have never been required to test our internal control within a specified period, and, as a result, we may experience difficulty in meeting these reporting requirements in a timely manner.

We may identify 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.

We will have broad discretion in the use of proceeds from this offering and may invest or spend the proceeds in ways with which you do not agree and in ways that may not increase the value of your investment.

We will have broad discretion over the use of proceeds from this offering. You may not agree with our decisions, and our use of the proceeds may not yield any return on your investment. We expect to use the net proceeds to us from this offering, together with our existing cash and cash equivalents, to complete our planned clinical trials, seek regulatory approval and fund the commercial launch, if approved, of VP-102 for the treatment of molluscum, to advance the clinical development of VP-102 for the treatment of common warts, as well as for working capital and other general corporate purposes, including to develop VP-103 and VP-102 for additional indications and to pursue our strategy to develop, in-license or acquire additional product candidates. In addition, we may use a portion of the proceeds from this offering to pursue our strategy to in-license or acquire additional product candidates. Our failure to apply the net proceeds from this offering effectively could compromise our ability to pursue our growth strategy and we might not be able to yield a significant return, if any, on our investment of these net proceeds. You will not have the opportunity to influence our decisions on how to use our net proceeds from this offering.

The recently passed comprehensive tax reform bill could adversely affect our business and financial condition.

On December 22, 2017, President Trump signed into law new legislation that significantly revises the Internal Revenue Code of 1986, as amended. The newly enacted federal income tax law, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), effective for net operating losses incurred in taxable years beginning after December 31, 2017, limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law is uncertain and our business and financial condition could be adversely affected. In addition, it is uncertain how various states will respond to the newly enacted federal tax law. The impact of this tax reform on holders of our common stock is also uncertain and could be adverse. We urge you to consult with your legal and tax advisors with respect to this legislation and the potential tax consequences of investing in or holding our common stock.

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 newly enacted 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, 2017, we had federal and state net operating loss carryforwards of $7.0 million. The federal and state net operating loss carryforwards will begin to expire, if not utilized, by 2036. These net operating loss carryforwards could expire unused and be unavailable to offset future income tax liabilities. Under the newly enacted federal income tax law, 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 newly enacted federal tax law. 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.

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

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

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

As a public company listed in the United States, we will incur significant additional legal, accounting and other costs, which we anticipate could be between $1.0 million and $2.0 million annually. 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 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. 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.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements that involve substantial risks and uncertainties. The forward-looking statements are contained principally in the sections entitled "Prospectus Summary," "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Business" and elsewhere in this prospectus. In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "expect," "plan," "anticipate," "could," "intend," "target," "project," "estimate," "believe," "estimate," "predict," "potential" or "continue" or the negative of these terms or other similar expressions intended to identify statements about the future. These statements speak only as of the date of this prospectus and involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements include, without limitation, statements about the following:

- 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 our NDA submission for VP-102 for the treatment of molluscum;
- the timing of and our ability to obtain and maintain regulatory approvals for VP-102 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 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 expected use of proceeds from this offering;
- 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;
- our estimates regarding future revenue, expenses and needs for additional financing; and
- the potential purchases by certain of our existing stockholders, including entities affiliated with certain of our directors, in this offering.

Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified and some of which are beyond our control, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. You should refer to the "Risk Factors" section of this prospectus 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. Moreover, we operate in an evolving environment. New risk factors and uncertainties may emerge from time to time, and it is not possible for management to predict all risk factors and uncertainties. As a result of these factors, we cannot assure you that the forward-looking statements in this prospectus will prove to be accurate. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise. You should, however, review the factors and risks and other information we describe in the reports we will file from time to time with the SEC after the date of this prospectus.

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

INDUSTRY AND OTHER DATA

We obtained the industry, statistical and market data in this prospectus from our own internal estimates and research as well as from industry and general publications and research, surveys and studies conducted by third parties. All of the market data used in this prospectus involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such data. While we believe that each of these studies and publications is reliable, the industry in which we operate is subject to a high degree of uncertainty and risk due to a variety of important factors, including those described in the section titled "Risk Factors." These and other factors could cause results to differ materially from those expressed in the estimates made by third parties and by us.

USE OF PROCEEDS

We estimate that the net proceeds from our issuance and sale of 5,000,000 shares of our common stock in this offering will be approximately $68.0 million (or $78.4 million if the underwriters exercise in full their option to purchase additional shares) after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

We intend to use the net proceeds from this offering, together with our existing cash and cash equivalents, as follows:

- approximately $61.0 million to complete our planned clinical trials, seek regulatory approval and fund the commercial launch, if approved, of VP-102 for the treatment of molluscum;
- approximately $12.0 million to advance the clinical development of VP-102 for the treatment of common warts; and
- the remainder for working capital and other general corporate purposes, including to develop VP-103 and VP-102 for additional indications and to pursue our strategy to develop, in-license or acquire additional product candidates, although we have no agreements or commitments for any specific acquisitions or in-licenses as of the date of this prospectus.

We believe that the net proceeds of this offering, together with our existing cash and cash equivalents, will enable us to fund our operations for at least the next 24 months, including the completion of our planned clinical trials, submission of NDAs and commercial launch, if approved, of VP-102 for the treatment of molluscum as well as the completion of our ongoing clinical trial of VP-102 for the treatment of common warts. We have based this estimate on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we expect. With respect to our clinical development of VP-102 for common warts and additional indications and our clinical development of VP-103, we expect that we will require additional funds as these programs progress, the amounts of which will depend on the ultimate clinical development paths we pursue.

This expected use of net proceeds from this offering and our existing cash and cash equivalents represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. Predicting the costs necessary to develop product candidates can be difficult. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our development, the status of and results from clinical trials, as well as any collaborations that we may enter into with third parties for our product candidates, and any unforeseen cash needs.

Our management will have broad discretion in the application of the net proceeds from this offering, and investors will be relying on the judgment of our management regarding the application of those net proceeds. The timing and amount of our actual expenditures will be based on many factors, including cash flows from operations and the anticipated growth of our business. Pending these uses, we plan to invest these net proceeds in short-term, interest bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the United States.

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. Any future determination related to our dividend policy will be made at the discretion of our board of directors and will depend upon, among other factors, our results of operations, financial condition, capital requirements, contractual restrictions, business prospects and other factors our board of directors may deem relevant.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and our capitalization as of March 31, 2018:

- on an actual basis;
- on a pro forma basis to give effect to:
  - the conversion of all outstanding shares of our convertible preferred stock into an aggregate of 16,246,872 shares of our common stock, which will occur immediately prior to the closing of this offering; and
  - the filing and effectiveness of our amended and restated certificate of incorporation upon the closing of this offering; and
- on a pro forma as adjusted basis to give further effect to our issuance and sale of 5,000,000 shares of common stock in this offering at the initial public offering price of $15.00 per share after deducting the underwriting discounts and estimated offering expenses payable by us.

You should read this information in conjunction with our financial statements and the related notes appearing at the end of this prospectus, the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section and other financial information contained in this prospectus.

	As of March 31, 2018		
	Actual	Pro Forma	Pro Forma As Adjusted
	(in thousands, except share and per share data)		
Cash and cash equivalents	$ 27,485	$ 27,485	$ 95,435
Convertible preferred stock (Series A), $0.0001 par value; 21,302,972 shares authorized, issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	$ 10,508	$ —	$ —
Convertible preferred stock (Series B), $0.0001 par value; 1,937,984 shares authorized, issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	5,000	—	—
Convertible preferred stock (Series C), $0.0001 par value; 4,606,267 shares authorized, issued or outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	20,993	—	—
Stockholders' (deficit) equity:			
Preferred stock, $0.0001 par value; no shares authorized, issued or outstanding, actual; 10,000,000 shares authorized and no shares issued or outstanding, pro forma and pro forma as adjusted	—	—	—
Common stock, $0.0001 par value; 33,236,900 shares authorized, 3,804,643 shares issued and 3,699,499 shares outstanding, actual; 200,000,000 shares authorized, 20,051,515 shares issued and 19,946,371 shares outstanding, pro forma; 200,000,000 shares authorized, 25,051,515 shares issued and 24,946,371 shares outstanding, pro forma as adjusted	0	2	3
Treasury stock, at cost, 105,144 shares	0	0	0
Additional paid-in capital	5,555	42,055	110,005
Accumulated deficit	(14,309)	(14,309)	(14,309)
Total stockholders' (deficit) equity	(8,753)	27,748	95,698
Total capitalization	$ 27,748	27,748	95,698

The number of shares of our common stock outstanding in the table above excludes:

- 1,156,048 shares of our common stock issuable upon the exercise of stock options outstanding under our 2013 equity incentive plan as of March 31, 2018, at a weighted average exercise price of $6.13 per share;
- 87,514 shares of our common stock issuable upon the exercise of stock options outstanding under our 2013 equity incentive plan granted subsequent to March 31, 2018, at an exercise price of $8.72 per share; and
- 3,738,199 shares of our common stock reserved for future issuance under our 2018 equity incentive plan, which will become effective upon the pricing of this offering, as well as any automatic increases in the number of shares of common stock reserved for future issuance under this plan (of which, we will grant non-statutory stock options to each of our eligible directors to purchase 17,502 shares of common stock upon the pricing of this offering at an exercise price equal to the initial public offering price).

DILUTION

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

As of March 31, 2018, we had a historical net tangible book value of $27.7 million, or $7.50 per share of common stock. Our historical net tangible book value per share represents total tangible assets less total liabilities, divided by the number of shares of our common stock outstanding as of March 31, 2018.

Our pro forma net tangible book value as of March 31, 2018 was $27.7 million, or $1.39 per share of our common stock. Pro forma net tangible book value represents the amount of our total tangible assets less our total liabilities, after giving effect to the conversion of all shares of our convertible preferred stock into an aggregate of 16,246,872 shares of our common stock, which will occur immediately prior to the closing of this offering. Pro forma net tangible book value per share represents pro forma net tangible book value divided by the total number of shares outstanding as of March 31, 2018, after giving effect to the pro forma adjustments described above.

After giving further effect to the sale of 5,000,000 shares of common stock in this offering at the initial public offering price of $15.00 per share and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of March 31, 2018 would have been approximately $95.7 million, or approximately $3.84 per share. This amount represents an immediate increase in pro forma net tangible book value of $2.45 per share to our existing stockholders and immediate dilution of approximately $11.16 per share to new investors in this offering. We determine dilution by subtracting the as pro forma adjusted net tangible book value per share after this offering from the amount of cash that a new investor paid for a share of common stock in this offering.

The following table illustrates this dilution:

Initial public offering price per share		$15.00
Historical net tangible book value per share as of March 31, 2018	$ 7.50	
Decrease per share attributable to the conversion of all outstanding shares of convertible preferred stock	(6.11)	
Pro forma net tangible book value per share as of March 31, 2018	1.39	
Increase per share attributable to this offering	2.45	
Pro forma as adjusted net tangible book value per share after this offering		3.84
Dilution per share to new investors in this offering		$11.16

If the underwriters exercise their option to purchase additional shares of our common stock in full, the pro forma as adjusted net tangible book value after this offering would be $4.13 per share, the increase in pro forma net tangible book value per share would be $2.74 and the dilution per share to new investors would be $10.87 per share.

The following table summarizes, as of March 31, 2018 on the pro forma as adjusted basis described above, the differences between the number of shares purchased from us, the total consideration paid to us in cash and the average price per share that existing stockholders and new investors paid for such shares. The calculation below is based on the initial public offering price of $15.00 per share, before deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

	Shares Purchased		Total Consideration		Average Price
	Number	Percent	Amount	Percent	Per Share
Existing stockholders	19,946,371	80%	$ 36,936,851	33%	$ 1.85
New investors	5,000,000	20	75,000,000	67	$ 15.00
Total	24,946,371	100%	111,936,851	100%	

The foregoing tables and calculations are based on the number of shares of our common stock outstanding as of March 31, 2018, and excludes:

- 1,156,048 shares of our common stock issuable upon the exercise of stock options outstanding under our 2013 equity incentive plan as of March 31, 2018, at a weighted average exercise price of $6.13 per share;
- 87,514 shares of our common stock issuable upon the exercise of stock options outstanding under our 2013 equity incentive plan granted subsequent to March 31, 2018, at an exercise price of $8.72 per share; and
- 3,738,199 shares of our common stock reserved for future issuance under our 2018 equity incentive plan, which will become effective upon the pricing of this offering, as well as any automatic increases in the number of shares of common stock reserved for future issuance under this plan (of which, we will grant non-statutory stock options to each of our eligible directors to purchase 17,502 shares of common stock upon the pricing of this offering at an exercise price equal to the initial public offering price).

To the extent that stock options are exercised, new stock options are issued under our equity incentive plan, or we issue additional shares of common stock in the future, there will be further dilution to investors participating in this offering. In addition, we may choose to raise additional capital because of market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans. If we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

Certain of our existing stockholders, including entities affiliated with certain of our directors, have agreed to purchase an aggregate of 1,500,000 shares of our common stock in this offering at the initial public offering price per share. The foregoing discussion and tables do not reflect any potential purchases by these persons or entities or their affiliated entities.

SELECTED FINANCIAL DATA

You should read the following selected financial data together with our financial statements and the related notes thereto included elsewhere in this prospectus and the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this prospectus. We have derived the statement of operations data for the years ended December 31, 2016 and 2017 and the balance sheet data as of December 31, 2016 and 2017 from our audited financial statements included elsewhere in this prospectus. The statement of operations data for the three months ended March 31, 2017 and 2018 and the balance sheet data as of March 31, 2018 have been derived from our unaudited interim financial statements included elsewhere in this prospectus and have been prepared on the same basis as the audited financial statements. In the opinion of management, the unaudited data reflects all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the financial information in those statements. Our historical results are not necessarily indicative of the results that should be expected in the future and the results for the three months ended March 31, 2018 are not necessarily indicative of the results to be expected for the full year ending December 31, 2018 or any other future period.

	Year Ended December 31,		Three Months Ended March 31,	
	2016	2017	2017	2018
	(in thousands, except share and per share data)			
Statement of Operations Data:				
Operating expenses:				
Research and development	$ 1,709	$ 3,730	$ 515	$ 929
General and administrative	204	727	55	986
Total operating expenses	1,913	4,457	570	1,915
Loss from operations	(1,913)	(4,457)	(570)	(1,915)
Other (expense) income	—	(2)	—	41
Net loss	(1,913)	(4,459)	(570)	(1,874)
Deemed dividend on Series A preferred stock	—	(5,300)	—	—
Net loss attributable to common stockholders	$ (1,913)	$ (9,759)	$ (570)	$ (1,874)
Net loss per share, basic and diluted	$ (0.52)	$ (1.21)	$ (0.15)	$ (0.51)
Net loss per share attributable to common stockholders, basic and diluted	$ (0.52)	$ (2.64)	$ (0.15)	$ (0.51)
Weighted average common shares outstanding, basic and diluted	3,685,084	3,699,158	3,698,190	3,699,499
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)(1)		$ (0.57)		$ (0.09)
Pro forma weighted average common shares outstanding, basic and diluted (unaudited)(1)		17,258,642		19,946,371

(1) See note 2 to our financial statements included elsewhere in this prospectus for an explanation of the method used to calculate the pro forma based and diluted net loss per common share.

	As of December 31,		As of March 31,
	2016	2017	2018
	(in thousands)		
Balance Sheet Data:			
Cash and cash equivalents	$ 527	$ 8,663	$ 27,485
Working capital(1)	125	8,467	27,257
Total assets	544	9,083	29,396
Convertible preferred stock	2,789	15,508	36,501
Total stockholders' deficit	(2,664)	(7,041)	(8,753)

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

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

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and the related notes and other financial information included elsewhere in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business, includes forward-looking statements that involve risks and uncertainties. You should review the "Risk Factors" section of this prospectus for a discussion of important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a clinical-stage medical dermatology company focused on identifying, developing and commercializing innovative pharmaceutical products for the treatment of skin diseases with significant unmet needs. 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, a highly contagious and primarily pediatric viral skin disease, and common warts. There are currently no FDA-approved products 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 API to be characterized as an 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. We also intend to develop our second cantharidin-based product candidate, VP-103, for the treatment of plantar warts.

We have recently initiated two randomized, double-blind, multicenter placebo-controlled Phase 3 clinical trials of VP-102 for the treatment of molluscum, CAMP-1 and CAMP-2, and expect to report top-line results from these trials in the first half of 2019. If the results from these trials are favorable, we plan to submit an NDA to the FDA for VP-102 for the treatment of molluscum in 2019. CAMP-1 is being conducted under an SPA with the FDA. We are also enrolling patients in a Phase 2 clinical trial of VP-102 for the treatment of common warts. We expect to report top-line results from this trial in the first half of 2019. 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. Since inception, we have raised an aggregate of $36.9 million of gross proceeds from the sale of convertible debt and shares of our preferred stock.

Since inception, we have incurred significant operating losses. Our net loss was $1.9 million and $4.5 million for the years ended December 31, 2016 and 2017, respectively. For the three months ended March 31, 2018, our net loss was $1.9 million. As of March 31, 2018, we had an accumulated deficit of

$14.3 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:

- complete clinical development of VP-102 for the treatment of molluscum, including our ongoing Phase 3 clinical trials;
- prepare and file for regulatory approval of VP-102 for the treatment of molluscum;
- continue to invest in the clinical development of VP-102 for the treatment of common warts and other indications;
- develop our second cantharidin-based product candidate, VP-103, for the treatment of plantar warts;
- prepare for commercialization of VP-102, if approved, including the hiring of sales and marketing personnel;
- manufacture our product candidates or otherwise secure the clinical and commercial supply of our product candidates;
- hire additional research and development and selling, general and administrative personnel;
- maintain, expand and protect our intellectual property portfolio; and
- incur additional costs associated with operating as a public company following the completion of this offering.

Services Agreement with PBM Capital Group, LLC

In December 2015, we entered into a services agreement with PBM Capital Group, LLC, an affiliate of PBM Capital Investments, LLC, or the services agreement, to engage PBM Capital Group, LLC for certain business development, operations, technical, contract, accounting and back office support services. We agreed to pay PBM Capital Group, LLC a fee of $2,500 per month for these services. The services agreement had an initial term of 12 months and automatically renewed monthly thereafter.

In March 2018, we entered into an amendment to the services agreement with PBM Capital Group, LLC effective as of April 1, 2018, which extended the term of the services agreement 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 services agreement 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.

Components of Results of Operations

Revenue

We have not generated any revenue since inception and do not expect to generate any revenue from the sale of products in the near future.

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 significantly over the next several years as we increase personnel costs, including stock-based compensation, conduct our pivotal Phase 3 clinical trials for VP-102 in patients with molluscum, conduct our ongoing Phase 2 clinical trial of VP-102 in patients with common 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 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. Product commercialization will take several years and millions of dollars in development costs.

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 professional fees for legal, accounting and tax-related services, insurance costs, as well as payments made under our services agreement with PBM.

We anticipate that our general and administrative expenses will increase as a result of increased payroll, expanded infrastructure and higher consulting, legal and tax-related services associated with maintaining compliance with stock exchange listing and SEC requirements, accounting and investor relations costs, and director and officer insurance premiums associated with being a public company. In addition, we expect to incur, at an increased rate compared to prior periods, significantly higher expenses associated with building a sales and marketing team in connection with the potential regulatory filing and approval of VP-102 for the treatment of molluscum. As a result, we expect to report significantly higher general and administrative expenses in 2018 and 2019.

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, 2017, we had federal and state net operating loss carryforwards of approximately $7.0 million. The federal and state net operating loss carryforwards generated in the 2016 and 2017 tax years will begin to expire, if not utilized, by 2036. 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 Three Months Ended March 31, 2017 and 2018

The following table summarizes our results of operations for the three months ended March 31, 2017 and 2018:

	Three Months Ended March 31,		
	2017	2018	Change
	(in thousands)		
Operating expenses:			
Research and development	$ 515	$ 929	$ 414
General and administrative	55	986	931
Total operating expenses	570	1,915	1,345
Loss from operations	(570)	(1,915)	(1,345)
Total other income	—	41	41
Net loss	$ (570)	$ (1,874)	$(1,304)

Research and Development Expenses

Research and development expenses were $0.5 million for the three months ended March 31, 2017, compared to $0.9 million for the three months ended March 31, 2018. The increase of $0.4 million was primarily attributable to costs associated with Phase 2 and Phase 3 clinical activities of $0.5 million, an increase in clinical support staff of $0.1 million and stock compensation costs for research and development staff of $0.1 million, partially offset by decreases in development batch manufacturing costs of $0.1 million and costs of external consultants of $0.1 million.

General and Administrative Expenses

General and administrative expenses were $0.1 million for the three months ended March 31, 2017, compared to $1.0 million for the three months ended March 31, 2018. The increase of $0.9 million was primarily attributable to increases in salary costs of $0.4 million, professional audit and accounting fees of $0.2 million and legal fees of $0.1 million.

Other Income

There was no other income for the three months ended March 31, 2017. Other income for the three months ended March 31, 2018 consisted entirely of interest income on our cash and cash equivalents.

Results of Operations for the Years Ended December 31, 2016 and 2017

The following table summarizes our results of operations for the years ended December 31, 2016 and 2017:

	Year Ended December 31,		
	2016	2017	Change
	(in thousands)		
Operating expenses:			
Research and development	$ 1,709	$ 3,730	$ 2,021
General and administrative	204	727	523
Total operating expenses	1,913	4,457	2,544
Loss from operations	(1,913)	(4,457)	(2,544)
Total other expense	—	(2)	(2)
Net loss	$(1,913)	$(4,459)	$(2,546)

Research and Development Expenses

Research and development expenses were $1.7 million for the year ended December 31, 2016, compared to $3.7 million for the year ended December 31, 2017. The increase of $2.0 million was primarily attributable to the manufacture of development batches of $0.4 million, costs associated with Phase 2 and Phase 3 clinical activities of $1.1 million and the addition of clinical support staff of $0.2 million.

General and Administrative Expenses

General and administrative expenses were $0.2 million for the year ended December 31, 2016, compared to $0.7 million for the year ended December 31, 2017. The increase of $0.5 million was primarily attributable to personnel recruiting fees of $0.2 million, professional audit and accounting fees of $0.1 million and legal fees of $0.1 million.

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 debt and convertible preferred stock, receiving aggregate gross proceeds of $36.9 million.

As of March 31, 2018, we had cash and cash equivalents of $27.5 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.

Cash Flows

The following table summarizes our cash flows for the three months ended March 31, 2017 and 2018:

	Three Months Ended March 31,	
	2017	2018
	(in thousands)	
Net cash used in operating activities	$ (509)	$ (2,154)
Net cash used in investing activities	—	(17)
Net cash provided by financing activities	482	20,993
Net (decrease) increase in cash and cash equivalents	$ (27)	$ 18,822

Operating Activities

During the three months ended March 31, 2018, operating activities used $2.2 million of cash, primarily resulting from a net loss of $1.9 million and from cash used in changes in operating assets and liabilities of $0.4 million, partially reduced by non-cash stock-based compensation of $0.2 million. Net cash used in changes in operating assets and liabilities consisted primarily of increases in prepaid expenses and other assets of $1.0 million partially offset by increases in accounts payable and accrued expenses of $0.6 million. The increase in prepaid expenses and other assets was primarily due to prepayments for raw materials and clinical development activities.

During the three months ended March 31, 2017, operating activities used $0.5 million of cash, primarily resulting from a net loss of $0.6 million, partially offset by cash provided by changes in operating assets and liabilities of $0.1 million. Net cash provided by changes in operating assets and liabilities consisted primarily of increases in accounts payable and accrued expenses of $0.1 million. The increase in accounts payable and accrued expenses was primarily due to clinical development activities.

Investing Activities

During the three months ended March 31, 2018, net cash used in investing activities was primarily related to the purchase of computer hardware. For the three months ended March 31, 2017, no cash was used in investing activities.

Financing Activities

During the three months ended March 31, 2018, net cash provided by financing activities was $21.0 million consisting of the net proceeds from the issuance of Series C preferred shares in February and March 2018.

During the three months ended March 31, 2017, net cash provided by financing activities was $0.5 million consisting of the net proceeds received from a stock subscription receivable associated with the issuance of Series A preferred shares in December 2015.

The following table summarizes our cash flows for the years ended December 31, 2016 and 2017:

	Year Ended December 31,	
	2016	2017
	(in thousands)	
Net cash used in operating activities	$(1,611)	$ (4,583)
Net cash used in investing activities	—	—
Net cash provided by financing activities	483	12,719
Net (decrease) increase in cash and cash equivalents	$(1,128)	$ 8,136

Operating Activities

During the year ended December 31, 2017, operating activities used $4.6 million of cash, primarily resulting from a net loss of $4.5 million and from cash used by changes in operating assets and liabilities of $0.2 million, partially reduced for non-cash stock-based compensation of $0.1 million. Net cash used in changes in operating assets and liabilities consisted primarily of increases in prepaid expenses and other assets of $0.4 million partially offset by increases in accounts payable and accrued expenses of $0.2 million. The increase in prepaid expenses and other assets was primarily due to prepayments for clinical development activities.

During the year ended December 31, 2016, operating activities used $1.6 million of cash, primarily resulting from a net loss of $1.9 million, partially offset by cash provided by changes in operating assets and liabilities of $0.3 million. Net cash provided by changes in operating assets and liabilities consisted primarily of increases in accounts payable and accrued expenses of $0.3 million. The increase in accounts payable and accrued expenses was primarily due to clinical development activities.

Financing Activities

During the year ended December 31, 2017, net cash provided by financing activities was $12.7 million as a result of net proceeds of $7.7 million received from a stock subscription receivable associated with the issuance of Series A preferred shares in December 2015 and net proceeds of $5.0 million received from the issuance Series B preferred shares in December 2017.

During the year ended December 31, 2016, net cash provided by financing activities was $0.5 million as a result of net proceeds received from a stock subscription receivable associated with the issuance of Series A preferred shares in December 2015.

Pursuant to the Series A Preferred Stock Purchase Agreement, PBM VP Holdings, LLC agreed to pay a stock subscription receivable of $8.5 million as we required additional funding to cover costs and expenses pursuant to a budget approved by our board of directors. We received $8.0 million during the year ended December 31, 2017 and $0.5 million during the year ended December 31, 2016.

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, following the completion of this offering, 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 expect our existing cash and cash equivalents, together with the net proceeds from this offering, will enable us to fund our operating expenses and capital expenditure requirements for at least the next 24 months. 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 of securing 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 this offering. 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, 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 stockholder. 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 & Commitments

We had no commitments to settle contractual obligations at December 31, 2017.

On March 22, 2018, we executed a purchase order, denominated in Chinese yuan, with a supplier, pursuant to which we agreed to purchase approximately $2.3 million of crude cantharidin material related to clinical and commercial supply.

On April 9, 2018, we entered into an agreement to sublease 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.

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 in the SEC rules and regulations.

Critical Accounting Policies

Our financial statements are prepared in accordance with generally accepted accounting principles in the United States, or GAAP. The preparation of our financial statements requires us to make estimates, assumptions and judgments that affect the reported amounts of assets, liabilities, costs and expenses. We base our estimates and assumptions on historical experience and other factors that we believe to be reasonable under the circumstances. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates. Our most critical accounting policies are summarized below. See note 2 to our financial statements beginning on page F-1 of this prospectus for a description of our other significant accounting policies.

Stock-Based Compensation

We measure and recognize compensation expense for all employee options based on the estimated fair value of the award on the grant date and non-employee options based on the estimated fair value of the award on the date when the options vest. We use the Black-Scholes option-pricing model to estimate the fair value of option awards. The fair value is recognized as expense on a straight-line basis over the requisite service period for each separately vesting portion of the award. We account for forfeitures as they occur. We have not issued awards where vesting is subject to a market or performance condition; however, if we were to grant such awards in the future, recognition would be based on the derived service period. Expense for awards with performance conditions would be estimated and adjusted on a quarterly basis based upon our assessment of the probability that the performance condition will be met.

The determination of the grant date fair value of options using an option pricing model is affected principally by our estimated fair value of shares of our common stock and requires management to make a number of other assumptions, including the expected life of the option, the volatility of the underlying shares, the risk-free interest rate and expected dividends. The assumptions used in our Black-Scholes option-pricing model represent management's best estimates at the time of measurement. These estimates are complex, involve a number of variables, uncertainties and assumptions and the application of management's judgment, as they are inherently subjective. If any assumptions change, our stock-based compensation expense could be materially different in the future.

These assumptions are estimated as follows:

- *Fair Value of Common Stock*. As our common stock has not historically been publicly traded, we estimated the fair value of common stock. See "Fair Value of Common Stock" and "Common Stock Valuation Methodology" sections.

- *Expected Term*. The expected term represents the period that our options are expected to be outstanding. We calculated the expected term using the simplified method for employee options based on the average of each option's vesting term and the contractual period during which the option can be exercised, which is typically 10 years following the date of grant.

- *Expected Volatility*. The expected volatility was based on the historical share volatility of several of our comparable publicly traded companies over a period of time equal to the expected term of the options, as we do not have any trading history to use the volatility of our own common stock.

- *Risk-Free Interest Rate*. The risk-free interest rate was based on the yields of U.S. Treasury securities with maturities appropriate for the term of the award.

- *Expected Dividend Yield*. We have not paid dividends on our common stock nor do we expect to pay dividends in the foreseeable future.

Fair Value of Common Stock

Historically, for all periods prior to this offering, the fair values of the shares of common stock underlying our options were estimated on each grant date by our board of directors. In order to determine the fair value, our board of directors considered, among other things, contemporaneous valuations of our common stock and preferred stock prepared by unrelated third-party valuation firms in accordance with the guidance provided by the American Institute of Certified Public Accountants 2013 Practice Aid, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*, or the Practice Aid. Given the absence of a public trading market of our capital stock, our board of directors exercised reasonable judgment and considered a number of objective and subjective factors to determine the best estimate of the fair value of our common and preferred stock, including:

- contemporaneous third-party valuations of our common stock;

- the prices, rights, preferences and privileges of our preferred stock relative to our common stock;

- our business, financial condition and results of operations, including related industry trends affecting our operations;

- the likelihood of achieving a liquidity event, such as an initial public offering or sale of our company, given prevailing market conditions;

- the lack of marketability of our common stock;

- the market performance of comparable publicly traded companies; and

- U.S. and global economic and capital market conditions and outlook.

The following table summarizes by grant date the number of shares of common stock subject to options granted since January 1, 2017, as well as the associated per share exercise price and the estimated fair value per share as of the grant date:

Grant Date	Number of Options Granted	Exercise Price per Share of Common Stock	Estimated Fair Value Per Share of Common Stock
January 8, 2017	17,502	$0.89	$0.26
February 12, 2018	878,923	$6.51	$6.51
February 26, 2018	113,768	$6.86	$6.86
March 5, 2018	72,928	$6.86	$6.86
April 4, 2018	87,514	$8.72	$8.72

Based on the initial public offering price of $15.00 per share of common stock, the intrinsic value of vested and unvested options outstanding per the table above was $9.8 million.

Common Stock Valuation Methodology

In valuing our common stock, our board of directors determined the equity value of our business generally using a combination of the income approach and the market approach valuation methods.

We conducted a valuation as of December 31, 2016 which used our Series A preferred stock financing as a starting point and determined the equity value of our company based on a "back-solve" methodology that utilized the option pricing method, a value allocation methodology prescribed in the AICPA's guide "Valuation of Privately-Held-Company Equity Securities Issued as Compensation." The allocation methodology also allocated that equity value across the securities in our capital structure—our Series A preferred stock and common stock. A discount for lack of marketability was then applied to conclude a fair market value for each share of common stock as of December 31, 2016 and a downward market adjustment from December 5, 2015 to December 31, 2016.

We conducted valuations subsequent to December 31, 2017 using a hybrid equity valuation and allocation model to determine our total equity value and resulting common stock per share value. The methodology aligns with the "Hybrid" method as described in the AICPA Guide for the Valuation of Privately Held Company Equity Securities Issued as Compensation that incorporates weighted outcomes akin to the Probability Weighted Expected Return Method.

Following the closing of this offering, the fair value of our common stock will be determined based on the closing price of our common stock on The Nasdaq Global Market.

Recent Accounting Pronouncements

See note 2 to our financial statements beginning on page F-1 of this prospectus for a description of recent accounting pronouncements applicable to our financial statements.

Qualitative and Quantitative 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, are in the form of a money market fund and marketable securities and are invested in U.S. Treasury obligations.

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, 2017 and March 31, 2018, 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 $2.3 million of crude cantharidin material, is denominated in Chinese yuan.

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, 2017 or three months ended March 31, 2018.

JOBS Act Transition Period

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.

We are in the process of evaluating the benefits of relying on other exemptions and reduced reporting requirements under the JOBS Act. Subject to certain conditions, as an emerging growth company, we may rely on certain of these exemptions, including without limitation, (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) the last day of the fiscal year (a) following the fifth anniversary of the completion of this offering, (b) in which we have total annual gross revenues of at least $1.07 billion or (c) 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.

BUSINESS

Overview

We are a clinical-stage medical dermatology company focused on identifying, developing and commercializing innovative pharmaceutical products for the treatment of skin diseases with significant unmet needs. 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.

We have recently initiated two randomized, double-blind, multicenter, placebo-controlled Phase 3 clinical trials of VP-102 for the treatment of molluscum, CAMP-1 and CAMP-2, and expect to report top-line results from these trials in the first half of 2019. If the results from these trials are favorable, we plan to submit a New Drug Application, or NDA, to the FDA for VP-102 for the treatment of molluscum in 2019. CAMP-1 is being conducted under a special protocol assessment, or SPA, with the FDA. We are also enrolling patients in a Phase 2 clinical trial of VP-102 for the treatment of common warts. We expect to report top-line results from this trial in the first half of 2019. 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. 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 have completed one Phase 2 clinical trial of our proprietary topical solution of cantharidin administered with the wooden stick part of a cotton-tipped swab, which is the method of application historically used with compounded cantharidin. We are conducting another Phase 2 clinical trial of our proprietary topical solution of cantharidin administered through our proprietary applicator, which we collectively refer to as VP-102, for the treatment of molluscum. In these trials, our proprietary topical solution of cantharidin has been observed to be well tolerated, with no serious adverse events or unexpected treatment related adverse events to date.

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 $1.0 billion. 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. We are currently enrolling patients in a Phase 2 clinical trial of VP-102 for the treatment of common warts. We expect to report top-line results from this trial in the first half of 2019.

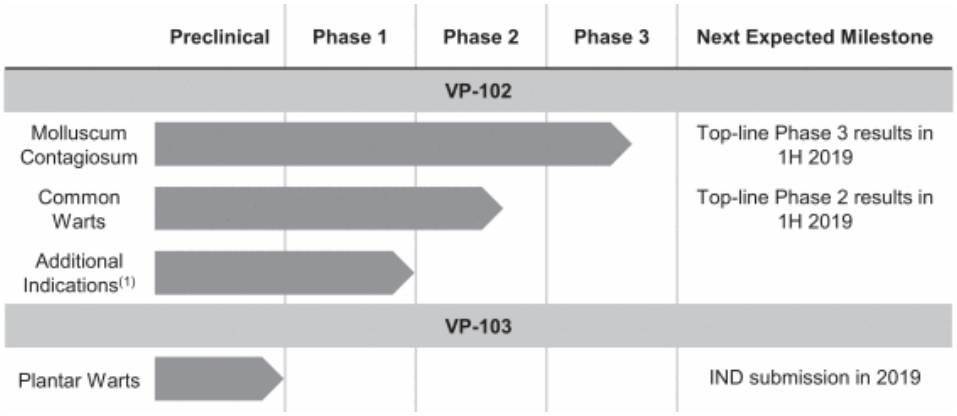
We also intend to develop our second cantharidin-based product candidate, VP-103, for the treatment of plantar warts. An estimated one-third of the approximately 4.1 million annual patient visits for all types of warts are for the treatment of plantar warts, which are warts located on the bottom of the foot. We expect to conduct IND-enabling studies for this product candidate and to submit an investigational new drug application, or IND, to the FDA by the end of 2019. Pending final formulation and IND clearance, we expect that we will be able to substantially leverage our experience with VP-102 to initiate Phase 2 trials directly in target patients with plantar warts. We also 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 management team has extensive pharmaceutical industry experience ranging from drug development through commercialization, having launched more than 50 products collectively. These products include dermatology products such as Lamisil, Elidel, Acticlate and Hemangeol and products having multi-billion dollar peak annual sales such as Nexium, Seroquel, Crestor and Diovan. The members of our management team have held senior leadership positions at a number of pharmaceutical and biotechnology companies, including Novartis, Aqua Pharmaceuticals (acquired by Almirall), AstraZeneca and Pierre Fabre. We believe that the breadth of experience and successful track record of our management team, combined with our broad network of established relationships with leaders in the industry and medical community, provide us with unique insights into drug development and commercialization. Furthermore, we have been supported by a group of leading biotech investors, including PBM Capital, Perceptive and OrbiMed.

Our Pipeline

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



(1) Additional indications under consideration include subungual warts, flat warts, actinic keratosis, genital warts and seborrheic keratosis.

Our Strategy

Our strategy is to identify, develop and commercialize innovative medical dermatology solutions for the treatment of skin diseases with significant unmet needs. The key components of our strategy are to:

- **Complete the development and obtain FDA approval of VP-102 for the treatment of molluscum.** In the first quarter of 2018, we initiated two randomized, double-blinded, multicenter placebo-controlled Phase 3 clinical trials of VP-102 for the treatment of molluscum, CAMP-1 and CAMP-2. CAMP-1 is being conducted under an SPA with the FDA. We believe VP-102 has the potential to become the standard of care in the underserved and undertreated primarily pediatric indication of molluscum. If the results of our Phase 3 clinical trials are favorable, we intend to submit an NDA for VP-102 for the treatment of molluscum to the FDA in 2019.

- **Commercialize VP-102 through the establishment of a specialized sales organization.** We intend to commercialize VP-102, if approved, by building a specialized sales organization in the United States 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 9,000 dermatologists in the United States with the highest potential for using VP-102. In the future, we may seek to develop and commercialize VP-102 for additional geographic regions, independently or with a strategic partner.

- **Advance the development and obtain FDA approval of VP-102 for the treatment of common warts.** We are also developing VP-102 for the treatment of common warts and expect to report top-line results from our Phase 2 clinical trial of VP-102 for the treatment of common warts in the first half of 2019. If the results of our Phase 2 clinical trial are favorable, we intend to schedule with the FDA an end of Phase 2 meeting in the second half of 2019.

- **Pursue additional development activities for our cantharidin-based product candidates.** We are currently evaluating and prioritizing other potential indications for our proprietary topical solutions of cantharidin such as plantar warts, flat warts, actinic keratoses, genital warts, subungual warts, and seborrheic keratoses. Specifically, we intend to conduct IND-enabling studies and submit an IND to the FDA for our second product candidate, VP-103, for the treatment of plantar warts in 2019. Additionally, we are developing a process for production of fully synthetic cantharidin.

- **Build a diversified multi-asset pipeline of novel therapies.** We intend to employ a value-driven strategy to identify, acquire, develop and commercialize product candidates for diseases that are treated by dermatologists. We intend to focus on product candidates that we believe have attractive profiles in early clinical testing and that can advance quickly and efficiently into late-stage development. As the dermatology landscape continues to evolve, we believe we can leverage the expertise and experience of our management team to be at the forefront of and capitalize on such opportunities.

Background of Cantharidin

Cantharidin Mechanism of Action

Cantharidin (1,2-Dimethyl-3,6-epoxyperhydrophthalic anhydride) is an inhibitor of protein phosphatase 2a, traditionally obtained from blister beetles. When applied topically, cantharidin functions as a vesicant, or blistering agent, predominantly through the release of neutral serine proteases that disrupt the proteins holding the layers of dermal and epidermal skin together. The resulting blistering causes the lesion to separate from the underlying skin. As the blister forms within the intraepidermal layer, healing generally occurs without scarring. According to published studies, cantharidin also initiates an inflammatory response that promotes recognition of the molluscum virus and expedites the clearance of both treated and untreated lesions.

Cantharidin History

The use of topical cantharidin for a wide variety of skin conditions by practitioners precedes the Federal Food, Drug, and Cosmetic Act of 1938, or the FDCA, which established only safety requirements and no requirement for efficacy. In 1962, the FDCA was amended to require that new drugs be shown to be both safe and effective prior to marketing and to date, topical cantharidin remains an unapproved drug with limited availability as it is illegal to import formulated cantharidin and the legal pathway to obtain cantharidin drug products is through compounding. Such compounding generally involves unstandardized, poorly controlled product. In spite of these limitations, in a 2014 survey of 115 dermatologists that we commissioned, over 95% of the dermatologists reported that they have used cantharidin.

Cantharidin's long history of use provides evidence of the safety profile of cantharidin drug products when applied topically. In February 2015, reviewers within the FDA's Division of Dermatology and Dental Products evaluated the then available data on cantharidin and concluded that the clinical information showed that, when used under careful physician direction, toxicities were no worse and sometimes less severe than other destructive treatments available for molluscum and warts.

Cantharidin Compounding and its Shortfalls

Although cantharidin has been used for over a century, a specification on the quality of cantharidin as an API, or in a standardized formulation has never been established. We believe that the historical compounded cantharidin formulations present a number of limitations, including:

- **Inconsistent Concentration.** Due to the volatility of the solvents used in compounded cantharidin, including diethyl ether, uncontrollable rapid solvent evaporation increases the concentration and

viscosity of the cantharidin solution, and medical practitioners often use the product until it is "too thick" to apply. This changing concentration results in variable potency and presents challenges for the practitioners, which can lead to patients receiving more drug than is clinically necessary and excessive blistering.

- **Inconsistent Purity and Lack of Controlled Product.** Without a standardized formulation, current practice introduces unnecessary risk to the patient and possible exposure to unidentified impurities and contaminants. According to the FDA, compounded cantharidin's purity could be highly variable, and the impurities are likely to be insect extracts, solvents or residual pesticides.

- **Unavailability.** It is illegal to import formulated cantharidin and the legal pathway to obtain cantharidin is through compounding of unstandardized, poorly controlled product. Additionally, while compounded cantharidin treatment may be available in private practice offices, it is generally not available in hospitals and academic settings, which may require an FDA-approved product. In a third-party survey of 400 healthcare providers published in the *Journal of the American Academy of Dermatologists*, approximately 70% of physicians who do not use cantharidin stated inaccessibility as a primary reason for not using it.

- **Inconvenient and Variable Administration.** The nature of the compounded cantharidin, coupled with the traditional application strategy of using the wooden stick part of a cotton-tipped swab, can lead to patients receiving more drug than is clinically necessary to achieve the desired effect. Treatment is further complicated by the inability to clearly identify where the drug has been applied.

- **Lack of Drug Reimbursement.** Since compounded cantharidin is not approved by the FDA, it is not eligible for drug reimbursement.

Molluscum

Background of Molluscum

Molluscum is a viral infection of the skin caused by a DNA pox virus. It produces small, raised, flesh-colored papules and papulovesicles, each one to four millimeters in diameter, which typically have an umbilicated, or dimpled, center. The lesions may occur anywhere on the body including the face, neck, arms, legs, abdomen and genital area, alone or in groups. 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. Molluscum lesions may itch or become irritated and picking or scratching the lesions may lead to secondary bacterial infection or scarring.

We estimate approximately 6 million people in the United States have molluscum. Molluscum has a 5% to 11% prevalence rate in children and 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. Molluscum is spread readily by autoinoculation and by person-to-person contact, including often between siblings and friends. This spreading, combined with the development of additional lesions in neighboring sites during this time, often leads to anxiety and social challenges for the patients and has been shown to negatively impact quality of life.

Current Treatments for Molluscum and Their Limitations

There are currently no FDA-approved medications for the treatment of molluscum and there is no established standard of care, resulting in an undertreated patient population. VP-102, if approved, will compete against various treatments, but many of these treatments have problems that limit broad use such as recurrence,

scarring, lack of availability, safety concerns and pain. In particular, the potential for scarring and pain makes many of these treatments unsuitable for children. These treatments include:

- **Topical products**: applying various acids, creams or blistering solutions, such as compounded cantharidin, to destroy the lesions. While compounded cantharidin is widely recognized by dermatologists, it is not FDA-approved, not readily available, and often not produced in accordance with GMP. In addition, the formulation and administration of cantharidin is not standardized and is poorly controlled.

- **Cryotherapy**: freezing the lesions with liquid nitrogen. Cryotherapy can be painful and can lead to scarring, making it unsuitable for use in children.

- **Curettage**: using a curette, or a surgical instrument with a scoop at the tip, to scrape the lesions from the skin. However, this procedure can also be painful and lead to scarring.

- **Laser surgery**: applying a laser to target and destroy the lesions. Pain, cost and lack of availability are major limiting factors, therefore, laser surgery is typically not used for the treatment of molluscum.

- **Off-label drugs**: prescribing retinoids, antiviral medicines, or immune modulating therapies such as imiquimod have been used in attempts to speed resolution of molluscum lesions. However, there is limited information to show these are effective treatments. For example, imiquimod has failed in two Phase 3 clinical trials for molluscum and has known side effects.

- **Natural remedies**: applying natural oils with antimicrobial properties, such as tea tree oil. However, these treatments have unproven efficacy, are minimally regulated, can be painful or irritating on application and may cause allergic reactions.

Our Solution: 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 a first-in-class treatment for molluscum that we believe 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.

Benefits of VP-102

- **Non-invasive and least painful upon application.** VP-102 is designed to result in little to no pain upon application in contrast to invasive treatment options such as cryosurgery, curettage, and laser surgery. This is especially important when treating younger children. According to *Fitzpatrick's Dermatology in General Medicine*, patients generally find cantharidin as the least painful therapy for the treatment of molluscum.

- **GMP-compliant product with improved stability and purity.** VP-102 has the potential to be the first cantharidin product compliant with GMP standards with a defined pharmaceutical batch process and an API that is greater than 99% pure. 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.

- **Compelling evidence of safety**. In February 2015, the FDA concluded based on then available clinical information, cantharidin's toxicities were no worse and sometimes less severe than other destructive treatments available for molluscum and warts. With respect to VP-102, no serious adverse events or unexpected treatment related adverse events have been observed in our clinical trials to date and treatment has been well tolerated. Other safety features include a proprietary self-sealing applicator that is designed to prevent an increase in concentration of cantharidin and the inclusion of a bittering agent mitigating oral ingestion by young children.

- **Potential to increase physician efficiency.** VP-102 is being developed as a proprietary drug-device combination for administration designed to ensure a more precise and efficient application compared to application with the wooden stick part of a cotton-tipped swab, which requires physicians to apply cantharidin multiple times from jar to lesion. Additionally, VP-102 contains a visualization agent enabling practitioners to see which lesions have been treated. As a result, VP-102, if approved, may allow for administration by any trained medical professional, not just the physician, saving valuable time in office for the provider as well as patients and their families.

- **Potential to be the first FDA-approved product for the treatment of molluscum.** There are currently no FDA-approved drugs for the treatment of molluscum and, if approved, VP-102 will be eligible for drug reimbursement and has the potential to become the standard of care.

Clinical Development for Molluscum

We submitted an IND for VP-102 for the treatment of molluscum to the FDA in March 2017 and have one ongoing Phase 2 clinical trial under this IND, which we refer to as the Innovate Trial. We have completed one Phase 2 clinical trial in molluscum using our proprietary topical solution of cantharidin administered with the wooden stick part of a cotton-tipped swab, which we refer to as the Pilot Trial. In both the Pilot Trial and the ongoing Innovate Trial, our proprietary topical solution of cantharidin has been observed to be well tolerated, with no serious adverse events or unexpected treatment related adverse events to date. Local skin reactions, as expected from the mechanism of action of cantharidin and anticipated based on published studies with cantharidin, have been commonly reported in these clinical trials.

In September 2017, following the completion of our Pilot Trial, we held an End-of-Phase 2 meeting with the FDA to discuss our VP-102 development program. At the meeting and in subsequent correspondence with the FDA, alignment was reached regarding the primary endpoint and other key aspects of the protocols for our Phase 3 clinical trials. The FDA agreed that the design and planned analysis of the trial adequately addresses the objectives necessary to support a regulatory submission. In the first quarter of 2018, we initiated two identical, randomized, double-blinded, multicenter, placebo-controlled Phase 3 clinical trials of VP-102 for the treatment of molluscum, CAMP-1 and CAMP-2. CAMP-1 is being conducted under an SPA with the FDA. We expect to report top-line results from these Phase 3 trials in the first half of 2019. If the results from these trials are favorable, we plan to submit an NDA to the FDA for VP-102 for the treatment of molluscum in 2019.

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

Trial and Status	Formulation and Application Method	Trial Design	Trial Objectives
Phase 3 Clinical Trials (CAMP-1 and CAMP-2) (n=~250 each) Ongoing	VP-102	• Randomized, double-blinded, multicenter, placebo-controlled • Safety and efficacy evaluated every 21 days for up to 4 applications	• 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
Phase 2 Innovate Trial (n=32) Ongoing; enrollment complete	VP-102	• Open-label, single-center • 24-hour treatment • Blood draws in patients 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	• 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
Phase 2 Pilot Trial (n=30) Completed in September 2017	Our proprietary formulation of cantharidin used in VP-102, applied with the wooden stick part of a cotton-tipped swab	• 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	• To evaluate safety and efficacy and determine optimal treatment duration • To assess impact on quality of life

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

We are conducting two randomized, double-blind, multicenter, placebo-controlled pivotal trials to evaluate the safety and efficacy of VP-102 in patients two years and older with molluscum. We applied for and have received SPA designation for CAMP-1. While we did not apply for SPA designation for CAMP-2, we have designed that trial to be identical to CAMP-1. These trials will be conducted at approximately 15 clinical sites each in the United States and will enroll up to 250 patients in each trial. Patients will be randomized to receive either VP-102 or placebo in a 3:2 ratio. The primary objective of the trials is to evaluate the efficacy of dermal application of VP-102 relative to placebo, when treated once every 21 days for up to four applications, by assessing the proportion of patients achieving complete clearance of all treatable molluscum lesions at day 84 (visit 5). Treatable lesions are generally defined as lesions that can be safely treated by the investigator and are more than one centimeter from the eyelid margins or any mucosal surface.

The secondary objectives of the trials are to assess the safety and tolerability of VP-102, by assessing adverse events including expected local skin reactions, physical examinations, and concomitant medications at end of the trial, compared to baseline. Secondary efficacy measures include evaluating of the efficacy of VP-102 relative to placebo by assessing the proportion of patients achieving complete clearance of all treatable molluscum lesions at day 21 (visit 2), day 42 (visit 3) and day 63 (visit 4).

We expect to report top-line results from these Phase 3 trials in the first half of 2019. If the results of these trials are favorable, we intend to submit an NDA for VP-102 for the treatment of molluscum to the FDA in 2019.

Phase 2 Clinical Trial—Innovate Trial

We have an ongoing open-label Phase 2 clinical trial, which we refer to as the Innovate Trial. This trial utilizes VP-102 in patients two years and older with molluscum. This trial is being conducted at a single site in the United States and we have completed enrollment of 32 patients. The primary objectives of the trial are to evaluate potential systemic exposure in 16 patients with severe disease following topical administration of VP-102 and to evaluate the safety and efficacy of dermal application of VP-102 for up to 24 hours when treatable lesions are treated once every 21 days for up to four applications. Based on interim data as of May 15, 2018, 9%, 29%, 52% and 63% of patients treated with VP-102 experienced complete clearance of their treatable lesions by days 21, 42, 63 and 84, respectively. In addition, the combined mean lesion count decreased from 29 lesions in 32 patients at baseline to 1 lesion in the 24 patients who had been evaluated through day 84, as of May 15, 2018. It is expected that at least 16 of the 32 patients will participate in an exposure portion of the trial to evaluate potential systemic exposure. Only patients with equal to or greater than 21 lesions are eligible for the exposure portion of the trial. Patients with 20 or fewer molluscum lesions have been enrolled in the trial to expand the number of patients and to evaluate clearance rates across all severity ranges of molluscum.

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 planned pivotal trials. The trial enrolled 30 patients 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 patients 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. Patients 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 patients 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 CDLQI score, and the percentage of patients who achieved

clearance of at least 90% of their lesions with comparison to the efficacy data obtained with compounded cantharidin. The Children's Dermatology Life Quality Index, or CDLQI, scale is a validated tool for measuring the impact of skin disease on quality of life for patients 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 patients, and was observed to be well tolerated, with no serious adverse events or unexpected treatment related adverse events recorded. Treatment-related adverse events were consistent with the known mechanism of action of cantharidin and included, among other things, blistering, redness, itchiness, temporary pigment changes and transient minor pain (controllable with an over-the-counter pain reliever) following application. Further, no blistering distal to the sites of treatment or scarring was observed. There were no cases of secondary infection, impetigo, cellulitis, or lymphangitis related to treatment.

The trial's first cohort investigated a six-hour treatment duration. Fourteen patients were enrolled in this cohort and 13 patients completed the trial. Of these 13 patients, 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 patients were enrolled in this cohort and 12 completed the trial. Of these 12 patients, five showed complete clearance on or before day 84 (visit 5) (42% complete clearance rate).

Other efficacy measures included lesion count and the CDLQI score. In the per-protocol group, the combined mean baseline lesion count was 23.0 and the combined mean lesion count at the end of trial was 6.8. The CDLQI score went from a combined average burden of 3.9 at baseline to 0.38 at the end of trial. While the majority of patients went to a CDLQI score of 0 when completely clear of their disease, patients felt an improvement in quality of life even if only partially cleared, supporting the idea that even lesion reduction is meaningful to patients.

Although the trial did not include a placebo control, based on reported results from two failed Phase 3 clinical trials evaluating imiquimod, a product candidate that was being evaluated for the treatment of molluscum, we estimate that, at the day 84 (visit 5) endpoint, patients receiving placebo would be expected to demonstrate complete clearance at a rate of 18% (42 patients of 232), a rate that was significantly less than that observed in our trials. In addition, epidemiology studies conducted to examine the natural history of molluscum have identified a rate of spontaneous resolution in patients with molluscum that is no greater than 17% after 12 weeks. However, caution must be used when comparing data from different studies that involved different study conditions and/or designs.

Common Warts

We are also developing VP-102 for the treatment of common warts. Currently, there are no FDA-approved products indicated for the treatment of common warts. We believe that cantharidin's role as a widely-recognized and effective blistering agent for the treatment of skin lesions, coupled with our 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. We are currently enrolling patients in a Phase 2 clinical trial evaluating both safety and efficacy of VP-102 for the treatment of common warts. We believe the results of this trial will inform the clinical design and statistical powering of future clinical trials.

Background of Common Warts

Common warts are cutaneous manifestations of the human papillomavirus, or HPV. Common warts are contagious, and while they typically resolve spontaneously with time, they can persist for years and are highly

refractory to treatment. 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 $1.0 billion. In the United States, approximately 50% of the patients who seek treatment for common warts are children, as warts are increasingly common in childhood, reaching a peak in prevalence in the teenage years. Approximately 60% of common wart patients are treated by dermatologists and 25% 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 numerous reasons why patients desire treatment. Common warts can cause considerable pain or discomfort, interfering with work or daily activities and are frequently considered cosmetically unsightly particularly if they occur on visually prominent areas like the face, neck, arms or hands. There is considerable social stigma associated with visible warts.

Current Treatments for Common Warts and Their Limitations

There are currently no FDA-approved products indicated for the treatment of common warts. Over-the-counter products, often containing salicylic acid, are the most common therapy. However, these products are slow to work, marginally effective and a frequent cause for multiple physician consultations. When patients seek a healthcare provider, treatment options include cryotherapy, surgical excision, prescription topicals such as retinoids and immunomodulators, cytotoxin injections, lasers and compounded cantharidin.

While multiple modalities are available for the treatment of common warts, compounded cantharidin has the same limitations for common warts as with molluscum, and none of the other treatments are uniformly effective. Salicylic acid therapy requires daily application and can cause a painful burning sensation. Cryotherapy has limited efficacy, with variability in results, and can cause severe pain, rendering it an unsuitable treatment option for sensitive areas and younger children. In addition, many of these therapies have the potential to leave scars.

Our Solution: 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 have enrolled patients in a Phase 2 clinical trial of VP-102 for the treatment of common warts, which has both safety and efficacy endpoints. We believe the results of this trial will inform the clinical design and statistical powering of future clinical trials.

We have enrolled approximately 20 patients in the trial, which is currently open-label. We originally designed the trial such that VP-102 would be applied once every 14 days for up to four applications to common warts on patients two years and older. Following the initiation of the trial, we decided to amend the trial protocol to permit patients in the first cohort to receive treatment with an interval of no less than every 14 days at the discretion of the investigator. We designed this exploratory treatment frequency in the first cohort in order to determine the desired treatment frequency for future clinical testing of VP-102 for the treatment of common warts.

Depending on our observations of the first cohort, we intend to further amend the trial protocol in order to add a second cohort of patients. These patients will receive VP-102 applications at a treatment frequency that we observe to be optimal based on the initial results of the exploratory cohort.

Trial and Status	Formulation and Application Method	Trial Design	Trial Objectives
Phase 2 Trial Ongoing	VP-102	• 24-hour treatment under occlusive tape	• To evaluate safety and efficacy over four treatments

We expect to initiate the second cohort of the Phase 2 trial in the third quarter of 2018 and to report top-line results from this trial in the first half of 2019. If the results of our Phase 2 clinical trial are favorable, we intend to schedule with the FDA an end of Phase 2 meeting in the second half of 2019.

Additional Indications for VP-102

We are currently evaluating and prioritizing other indications for VP-102, including actinic keratoses, genital warts, subungual warts, flat warts and seborrheic keratoses. We believe VP-102 may have the potential to address these skin diseases due to their similar nature to molluscum and common warts. Furthermore, we are evaluating and intend to further explore the use of cantharidin for other skin diseases.

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 expect to conduct IND-enabling studies for VP-103 and to submit an IND to the FDA by the end of 2019.

Manufacturing

We do not have any manufacturing facilities. We have been relying on third parties for the manufacture of the products for preclinical studies and clinical trials, and will likely continue to rely on these third parties in the near term for the commercial manufacture of the 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. We have acquired a quantity of cantharidin that we believe would be sufficient to take us through the commercial launch of VP-102 for the treatment of molluscum, but we do not currently have a supply agreement in place with our existing supplier, for redundant supply or for additional sources of naturally-sourced cantharidin.

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

We have manufactured both the API as well as the drug product at batch sizes that should be indicative of commercial scale processing capability. We are confident of the ability to scale both processes to commercial size as they employ equipment that is routinely used in the pharmaceutical industry and the processes are well understood. 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.

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 9,000 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, 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 or common warts.

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 companies conducting late-stage clinical trials for common warts, including Aclaris Therapeutics and Cutanea Life Sciences. 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 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, although we have filed patent applications on our cantharidin preparations, cantharidin formulations, 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 patents will be issued from our pending or any future applications.

As of March 31, 2018, we have nationalized three patent applications for utility patents, two 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. In addition, we have four pending U.S. provisional applications and one patent application for a 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, 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 patents will be issued 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 a term of 20 years from the earliest effective 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 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 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 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 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 delivered to patients via a proprietary applicator. 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. However, the FDA sometimes will require separate marketing applications for individual constituent parts of the combination product which may require additional time, effort, and information, and we cannot be certain that the FDA would not require independent clearance or approval for the proprietary applicator. 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 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 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 reauthored, 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 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 an 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. An SPA request must be made before the proposed trial begins, and all open issues must be resolved before the trial begins for an SPA to be approved. If a written agreement is reached, it will be documented in an 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 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. An SPA, however, does not guarantee that a trial will be successful.

The Hatch-Waxman Amendments

Our current regulatory strategy is to pursue development of VP-102 as a Section 505(b)(2) NDA. As an alternative path to FDA approval for modifications to formulations or uses of drugs previously approved by the FDA, an applicant may submit an NDA under Section 505(b)(2) of the FDCA. Section 505(b)(2) was enacted as part of the Hatch-Waxman Amendments. A Section 505(b)(2) NDA is an application that contains full reports of investigations of safety and effectiveness, but where at least some of the information required for approval comes from studies not conducted by, or for, the applicant and for which the applicant has not obtained a right of reference or use from the person by or for whom the investigations were conducted. This type of application permits reliance for such approvals on literature or on an FDA finding of safety, effectiveness or both for an approved drug product. As such, under Section 505(b)(2), the FDA may rely, for approval of an NDA, on data not developed by the applicant. Therefore, if we can satisfy the conditions required for a Section 505(b)(2) NDA submission, it may eliminate the need for us to conduct some of the preclinical studies or clinical trials for the new product candidate that might otherwise have been required, although the review time is not shortened. The FDA may then approve the new product candidate for the new indication sought by the 505(b)(2) applicant.

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 an 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. 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 consequences 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 that are placed on the market. 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. 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.

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 2018, the FDA released a draft 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 proposed in the draft 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 and formulary managers 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. 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 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 and provided for a 0.5% annual increase in payment rates under the Medicare Physician Fee Schedule through 2019, but no annual update from 2020 through 2025. MACRA also introduced a merit based incentive bonus program for Medicare physicians beginning in 2019. At this time, it is unclear how the introduction of the merit based incentive program will impact overall physician reimbursement under the Medicare program.

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 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 Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug.

Some of the provisions of the ACA have yet to be implemented, and there have been 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 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". Additionally, on January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain ACA-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. 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."

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 2027 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 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. While any proposed measures will require authorization through additional legislation to become effective, Congress and the 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.

Employees

As of May 15, 2018, we had 11 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.

Facilities

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

Legal Proceedings

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

MANAGEMENT

Executive Officers and Directors

The following table provides information regarding our current executive officers, other key employees and directors, including their ages as of March 31, 2018:

NAME	AGE	POSITION(S)
Executive Officers		
Ted White	53	Chief Executive Officer, President and Director
Chris Degnan	38	Chief Financial Officer
Linda Palczuk	56	Chief Operating Officer
Joe Bonaccorso	54	Chief Commercial Officer
Matt Davidson(1)	33	Chief Scientific Officer and Director
Patrick Burnett	46	Chief Medical Officer
Non-Employee Directors		
Paul B. Manning(2)	62	Chairman of the Board
Sean Stalfort(3)	48	Director
Glenn Oclassen(2)(4)	75	Director
Jayson Rieger(5)	42	Director
Mark Prygocki(2)(3)(4)	51	Director
Gary Goldenberg(3)(4)	41	Director

(1) Pursuant to a transition agreement we entered into with Dr. Davidson effective as of May 31, 2018, Dr. Davidson will resign from his position as our Chief Scientific Officer and from our board of directors effective immediately prior to, and contingent upon, the effectiveness of the registration statement of which this prospectus forms a part. We expect to enter into a consulting agreement with Dr. Davidson, pursuant to which he will continue to provide services to us following his resignation.
(2) Member of the compensation committee. Mr. Oclassen serves as chair of this committee.
(3) Member of the nominating and corporate governance committee. Dr. Goldenberg serves as chair of this committee.
(4) Member of the audit committee. Mr. Prygocki serves as chair of this committee.
(5) Dr. Rieger will resign from our board of directors effective immediately prior to, and contingent upon, the effectiveness of the registration statement of which this prospectus forms a part.

Executive Officers

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 January 2011 to September 2017, Mr. White was the President and General Manager at Almirall, a global pharmaceutical company based in Barcelona, Spain with a focus on medical dermatology, the parent company of Aqua Pharmaceuticals. 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.

Chris Degnan has served as our Chief Financial Officer since March 2018. Prior to joining our company, Mr. Degnan held roles of increasing responsibility at Endo International plc, a generics and specialty branded pharmaceutical company, beginning in November 2014, where he most recently served as the Vice President of Finance, Corporate FP&A and International Pharmaceuticals Segment Chief Financial Officer from December 2016 to March 2018. Prior to that, he was the Vice President of Finance, Chief Financial Officer for Endo's U.S. Branded Pharmaceuticals segment. Prior to joining Endo, Mr. Degnan held roles of increasing responsibility at AstraZeneca plc, a global biopharmaceutical company, beginning in 2004, most recently as Senior Finance Director, U.S. Commercial Finance from July 2013 to November 2014. He is a Certified Public Accountant in the State of Pennsylvania (voluntary inactive status). Mr. Degnan holds a B.S. degree in Accounting from the University of Notre Dame.

Linda Palczuk has served as our Chief Operating Officer since February 2018. Prior to that, Ms. Palczuk was President & Chief Executive Officer for Osiris Therapeutics, Inc. from July 2017 to February 2018. Between

January 2016 and July 2017 Ms. Palczuk served as an independent consultant to pharmaceutical companies. Ms. Palczuk spent 30 years with AstraZeneca, where she held senior level commercial roles, including Vice President, Established Brands & Global Commercial Excellence between January 2012 and March 2015. Ms. Palczuk received her B.A. in Biology from Franklin & Marshall College and her M.B.A. from the University of Delaware.

Joe Bonaccorso has served as our Chief Commercial Officer since February 2018. From 2012 to February 2018, Mr. Bonaccorso started and ran the US 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.

Matt Davidson has served as our Chief Scientific Officer since December 2017. From our inception in August 2013 to December 2017, Dr. Davidson served as our Chief Executive Officer and President and Treasurer. Dr. Davidson has also served as a member of our board of directors since August 2013. Dr. Davidson holds a Ph.D. in Immunology from Stanford University and a B.A. in Molecular and Cellular Biology from the University of California, Berkeley. Pursuant to a transition agreement we entered into with Dr. Davidson effective as of May 31, 2018, Dr. Davidson will resign from his position as our Chief Scientific Officer and from our board of directors effective immediately prior to, and contingent upon, the effectiveness of the registration statement of which this prospectus is a part.

Patrick Burnett has served as our Chief Medical Officer since April 2018. Dr. Burnett was most recently 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, 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.

Non-Employee Directors

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 President 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 Dova Pharmaceuticals, Inc., a publicly traded pharmaceutical company, as well as various private companies. Mr. Manning was previously on the board of directors of 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.

Sean Stalfort has served as a member of our board of directors since December 2015. Mr. Stalfort has been a partner at PBM Capital Group, LLC, a private equity investment firm in the business of investing in healthcare and life-science related companies, 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 Dova Pharmaceuticals, Inc., a publicly traded pharmaceutical company, as well as several private healthcare companies. 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.

Glenn Oclassen has served as a member of our board of directors since December 2015. Prior to his retirement in October 2014, Mr. Oclassen was the President and Chief Executive Officer, and a director of Transcept Pharmaceuticals, Inc. from 2002 until the company merged with Paratek Pharmaceuticals. Mr. Oclassen was previously the founder, President and CEO of Oclassen Pharmaceuticals which was sold to Watson Laboratories in 1997. Mr. Oclassen holds a B.S. in zoology from San Diego State University. Our board of directors believes that Mr. Oclassen should serve as a director based upon his pharmaceutical industry experience in multiple capacities from sales and marketing to chief executive positions.

Jayson Rieger has served as a member of our board of directors since December 2015. Dr. Rieger has been a principal at PBM Capital Group since 2014, where he manages new investment evaluation, deal sourcing, and provides technical and operational business support for portfolio companies. Prior to his tenure at PBM Capital, Dr. Rieger served as Corporate Senior Vice President and President of the Human Therapeutics Division at Intrexon Corporation, a synthetic biology company, from 2012 to 2013. Dr. Rieger also served as the Vice President of Research and Virginia Operations for Clinical Data, Inc. from 2008 to its acquisition by Forest Labs in 2011. He also previously held the role of Vice President of Lead Development at Adenosine Therapeutics, LLC from 2002 until it was acquired by Clinical Data in 2008. Dr. Rieger received his Ph.D. from the University of Virginia Dept. of Chemistry, MBA from the Darden Business School and B.A. from Rollins College. Dr. Rieger will resign from his position on our board of directors effective immediately prior to, and contingent upon, the effectiveness of the registration statement of which this prospectus is a part.

Mark Prygocki has served as a member of our board of directors since May 2018. Since January 2017, he has served as President, Chief Executive Officer and been 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 December 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 December 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.

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.

Board Composition

Our board of directors will consist of six members upon the upon the effectiveness of the registration statement of which this prospectus forms a part. Mr. Manning is the chairman of our board of directors. Each

director is currently elected to the board for a one-year term, to serve until the election and qualification of successor directors at the annual meeting of stockholders, or until the director's earlier removal, resignation or death.

Our directors were elected to and currently serve on the board pursuant to a voting agreement among us and several of our largest stockholders. This agreement will terminate upon the closing of this offering, after which there will be no further contractual obligations regarding the election of our directors.

In accordance with our amended and restated certificate of incorporation, which will be in effect upon the closing of this offering, our board of directors will be divided into three classes, each of which will consist, as nearly as possible, of one-third of the total number of directors constituting our entire board and which will serve staggered three-year terms. At each annual meeting of stockholders, the successors to directors whose terms then expire will be elected to serve from the time of election and qualification until the third annual meeting following election. Our directors will be divided among the three classes as follows:

- Class I, which will consist of Glenn Oclassen and Sean Stalfort, and their term will expire at our first annual meeting of stockholders to be held after the closing of this offering;
- Class II, which will consist of Paul B. Manning and Gary Goldenberg, and their term will expire at our second annual meeting of stockholders to be held after the closing of this offering; and
- Class III, which will consist of Ted White and Mark Prygocki, and their term will expire at our third annual meeting of stockholders to be held after the closing of this offering.

Our amended and restated bylaws, which will become effective upon the closing of this offering, will provide that the authorized number of directors may be changed only by resolution approved by a majority of our board of directors. Any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors.

The division of our board of directors into three classes with staggered three-year terms may delay or prevent a change of our management or a change of control.

Director Independence

Applicable Nasdaq rules require a majority of a listed company's board of directors to be comprised of independent directors within one year of listing. In addition, Nasdaq rules require that, subject to specified exceptions, each member of a listed company's audit, compensation and nominating and corporate governance committees be independent and that audit committee members also satisfy independence criteria set forth in Rule 10A-3 under the Exchange Act of 1934, as amended, or the Exchange Act. The Nasdaq independence definition includes a series of objective tests, such as that the director is not, and has not been for at least three years, one of our employees, that neither the director nor any of his family members has engaged in various types of business dealings with us and that the director is not associated with the holders of more than 5% of our common stock. In addition, under applicable Nasdaq rules, a director will only qualify as an "independent director" if, in the opinion of the listed company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.

Our board of directors has determined that three of our directors, Mr. Oclassen, Mr. Prygocki and Dr. Goldenberg, are independent directors, as defined under applicable Nasdaq rules. In making such determination, our board of directors considered the relationships that each such non-employee director has with our company and all other facts and circumstances that our board of directors deemed relevant in determining his or her independence, including the beneficial ownership of our capital stock by each non-employee director. We intend to rely on phase-in periods under the Nasdaq rules with respect to director independence, which allow us

to have less than a majority of independent directors upon the date of listing of our common stock, so long as our board has a majority of independent directors within one year of the date of listing. Accordingly, we plan to have a board of directors comprised of a majority of independent directors within one year of the date of listing.

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

Role of the Board in Risk Oversight

One of the key functions of our board of directors is informed oversight of our risk management process. Our board of directors does not have a standing risk management committee, but rather administers this oversight function directly through the board of directors as a whole, as well as through various standing committees of our board of directors that address risks inherent in their respective areas of oversight. In particular, our board of directors is responsible for monitoring and assessing strategic risk exposure and our audit committee has the responsibility to consider and discuss our major financial risk exposures and the steps our management has taken to monitor and control these exposures, including guidelines and policies to govern the process by which risk assessment and management is undertaken. The audit committee also monitors compliance with legal and regulatory requirements.

Board Committees

Our board of directors has established an audit committee, compensation committee and a nominating and corporate governance committee, each of which operate pursuant to a committee charter. Our board of directors may establish other committees to facilitate the management of our business. The composition and functions of each committee are described below.

Audit Committee

Upon completion of this offering, our audit committee will consist of Mr. Prygocki, Mr. Oclassen and Mr. 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 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 has considered Mr. Prygocki's formal education and previous and current experience in financial and accounting roles. Both our independent registered public accounting firm and management periodically meet privately with our audit committee.

The functions of this committee include, among other things:

- evaluating the performance, independence and qualifications of our independent auditors and determining whether to retain our existing independent auditors or engage new independent auditors;
- reviewing and approving the engagement of our independent auditors to perform audit services and any permissible non-audit services;
- monitoring the rotation of partners of our independent auditors on our engagement team as required by law;

- prior to engagement of any independent auditor, and at least annually thereafter, reviewing relationships that may reasonably be thought to bear on their independence, and assessing and otherwise taking the appropriate action to oversee the independence of our independent auditor;

- reviewing our annual and quarterly financial statements and reports, including the disclosures contained under the caption "Management's Discussion and Analysis of Financial Condition and Results of Operations," and discussing the statements and reports with our independent auditors and management;

- reviewing with our independent auditors and management significant issues that arise regarding accounting principles and financial statement presentation and matters concerning the scope, adequacy and effectiveness of our financial controls;

- reviewing with management and our auditors any earnings announcements and other public announcements regarding material developments;

- establishing procedures for the receipt, retention and treatment of complaints received by us regarding financial controls, accounting or auditing matters and other matters;

- preparing the report that the SEC requires in our annual proxy statement;

- reviewing and providing oversight of any related-person transactions in accordance with our related person transaction policy and reviewing and monitoring compliance with legal and regulatory responsibilities, including our code of business conduct and ethics;

- reviewing our major financial risk exposures, including the guidelines and policies to govern the process by which risk assessment and risk management is implemented;

- reviewing on a periodic basis our investment policy; and

- reviewing and evaluating on an annual basis the performance of the audit committee and the audit committee charter.

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

Compensation Committee

Upon completion of this offering, our compensation committee will consist of Mr. Oclassen, Mr. Prygocki and Mr. Manning, with Mr. Oclassen serving as chair of the compensation committee. Mr. Oclassen and Mr. Prygocki 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, or the Code. Our board of directors has determined that Mr. Oclassen and Mr. Prygocki are "independent" as defined under the applicable Nasdaq listing standards, including the standards specific to members of a compensation committee. We are permitted to phase in our compliance with the independent compensation committee requirements set forth by the Nasdaq listing standards as follows: (1) one independent member at the time of listing, (2) a majority of independent members within 90 days of listing and (3) all independent members within one year of listing. Within one year of our listing on The Nasdaq Global Market, we expect that Mr. Manning will have resigned from our compensation committee and that any new directors added to the compensation committee will be independent under Nasdaq listing rules, a non-employee director, as defined in Rule 16b-3 promulgated under

the Exchange Act, and an "outside director," as defined pursuant to Section 162(m) of the Code. The functions of this committee include, among other things:

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

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

Nominating and Corporate Governance Committee

Upon completion of this offering, our nominating and corporate governance committee will consist of Dr. Goldenberg, Mr. Prygocki and Mr. Stalfort, with Dr. Goldenberg serving as chair of the nominating and corporate governance committee. Our board of directors has determined that Dr. Goldenberg and Mr. Prygocki are "independent" as defined under the applicable Nasdaq listing standards and SEC rules and regulations. We are permitted to phase in our compliance with the independent nominating and corporate governance committee requirements set forth by the Nasdaq listing standards as follows: (1) one independent member at the time of listing, (2) a majority of independent members within 90 days of listing and (3) all independent members within one year of listing. Within one year of our listing on The Nasdaq Global Market, we expect that Mr. Stalfort will have resigned from our nominating and corporate governance committee and that any new directors added to the nominating and corporate governance committee will be independent under Nasdaq listing rules. The functions of this committee include, among other things:

- identifying, reviewing and evaluating candidates to serve on our board of directors;
- determining the minimum qualifications for service on our board of directors;
- evaluating director performance on the board and applicable committees of the board and determining whether continued service on our board is appropriate;
- evaluating, nominating and recommending individuals for membership on our board of directors;
- evaluating nominations by stockholders of candidates for election to our board of directors;
- considering and assessing the independence of members of our board of directors;
- developing a set of corporate governance policies and principles and recommending to our board of directors any changes to such policies and principles;
- reviewing and making recommendations to the board of directors with respect to management succession planning;
- considering questions of possible conflicts of interest of directors as such questions arise; and
- reviewing and evaluating on an annual basis the performance of the nominating and corporate governance committee and the nominating and corporate governance committee charter.

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

Our board of directors may from time to time establish other committees.

Compensation Committee Interlocks and Insider Participation

None of our directors who serve as a member of our compensation committee is, or has at any time during the past year been, one of our officers or employees. None of our executive officers currently serves, or in the past year has served, as a member of the board of directors or compensation committee of any other entity that has one or more executive officers serving on our board of directors or compensation committee.

Code of Business Conduct and Ethics

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. Following the effectiveness of the registration statement of which this prospectus is a part, the Code of Conduct will be available on our website at *www.verrica.com*. We intend to post on our website all disclosures that are required by law or the listing standards of The Nasdaq Global Market concerning any amendments to, or waivers from, any provision of the Code of Conduct.

Non-Employee Director Compensation

In the year ended December 31, 2017, we did not pay any fees to, make any equity awards or non-equity awards to, or pay any other compensation to the non-employee members of our board of directors for their services as directors. Our non-employee directors only received reimbursement of their actual out-of-pocket costs and expenses incurred in connection with attending board meetings.

In August 2014, we entered into an advisor agreement with Glenn Oclassen pursuant to which Mr. Oclassen was eligible to receive an option to purchase 82,924 shares of our common stock in exchange for his advisory services to us. We granted Mr. Oclassen 82,924 shares of restricted common stock in lieu of the option. The restricted shares were vested in full as of July 2016.

Non-Employee Director Compensation Policy

In anticipation of this offering and the increased responsibilities of our directors as directors of a public company, our board of directors has adopted a non-employee director compensation policy, effective as of the effectiveness of the registration statement of which this prospectus forms a part, pursuant to which 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, which as of the pricing of this offering will be Mr. Oclassen, Mr. Prygocki and Dr. Goldenberg, will be eligible to receive compensation for service on our board of directors and committees of our board of directors.

Each eligible director will receive 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 will be 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, will be 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, on the date the registration statement of which this prospectus forms a part becomes effective each eligible director, and each new eligible director who joins our board of directors after the pricing of this offering, 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 though the applicable vesting date.

Each option awarded to eligible directors under the non-employee director compensation policy will be 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 will be equal to the closing price of our common stock on the Nasdaq Global Market on the

date of grant. Each stock option will have 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).

EXECUTIVE COMPENSATION

From January 1, 2017 to December 18, 2017, Matt Davidson acted as our President and Chief Executive Officer. In 2017, Jayson Rieger acted as our Chief Operating Officer. Beginning on September 18, 2017, James Reebals served as our Chief Financial Officer. On December 18, 2017, Ted White was appointed as our Chief Executive officer and Matt Davidson was appointed as our Chief Scientific Officer. Both Dr. Rieger and Mr. Reebals are employees of PBM Capital Group, LLC. In February 2018, we hired Joseph Bonaccorso as our Chief Commercial Officer and Linda Palczuk as our Chief Operating Officer. In March 2018, we hired Chris Degnan as our Chief Financial Officer. Dr. Rieger ceased serving as our Chief Operating Officer in February 2018 and Mr. Reebals ceased serving as our Chief Financial Officer in March 2018. In April 2018, we hired Patrick Burnett as our Chief Medical Officer.

We refer to Dr. Davidson, Dr. Rieger and Mr. White as our named executive officers for 2017.

The following tables and accompanying narrative disclosure set forth information about the compensation paid to our named executive officers, including the limited compensation paid to PBM Capital Group, LLC that may be attributed to Dr. Rieger's services to us during 2017. Although Mr. Bonaccorso, Ms. Palczuk, Mr. Degnan and Dr. Burnett commenced services with us in 2018, we have included information in the following narrative regarding each of such officers' compensation where it may be material to an understanding of our executive compensation program.

2017 Summary Compensation Table

Although we did not pay Dr. Rieger any base salary, bonus or stock-based or other compensation during 2017, we have a services agreement with PBM Capital Group, LLC, which provides for certain scientific and technical, accounting, operations and back office support services as well as legal and professional fees and consulting services, pursuant to which we paid PBM Capital Group, LLC a flat fee of $30,000 during 2017. Other than the portion of the management fees paid to PBM Capital Group, LLC that may be attributable to Dr. Rieger's services to us, if any, we did not pay any other compensation, benefits or perquisites for Dr. Rieger's services to us during 2017. It is not possible to determine the amount of such fees that may be attributable to the services provided by Dr. Rieger.

The following table presents the compensation awarded to, earned by or paid to each of our other two named executive officers, Mr. White and Dr. Davidson, for the year ended December 31, 2017.

Name and Principal Position	Year	Salary ($)	All Other Compensation ($)	Total ($)
Matt Davidson[1] Chief Scientific Officer, Former President and Chief Executive Officer	2017	219,167	19,273[2]	238,440
Ted White President and Chief Executive Officer	2017	24,359	—	24,359

(1) Pursuant to a transition agreement we entered into with Dr. Davidson effective as of May 31, 2018, Dr. Davidson will resign from his position as our Chief Scientific Officer and from our board of directors effective immediately prior to, and contingent upon, the effectiveness of the registration statement of which this prospectus is a part. We expect to enter into a consulting agreement with Dr. Davidson, pursuant to which he will continue to provide services to us following his resignation.

(2) This amount consists of a health insurance stipend of $14,772 that we paid to Dr. Davidson as well as company contributions made to Dr. Davidson's 401(k) plan account.

Outstanding Equity Awards at December 31, 2017

As of December 31, 2017, our named executive officers did not hold any outstanding stock options, and Mr. White and Dr. Rieger did not hold any outstanding stock awards. We granted stock options to our current executive officers in 2018, described directly below under the section titled "— Employment Arrangements and

Potential Payments upon Termination of Employment." The following table provides information about outstanding stock awards held by Dr. Davidson at December 31, 2017.

	Stock Awards	
Name	Number of Shares of Stock That Have Not Vested (#)	Market Value of Shares of Stock That Have Not Vested ($)
Matt Davidson	848,859(1)	3,183,221(2)

(1) These restricted shares will vest on the earliest to occur of (i) the consummation of a change of control transaction, (ii) the FDA's approval of a new drug application for a drug containing cantharidin or a cantharidin derivative, (iii) the Company's commencement of sale of products containing cantharidin or a cantharidin derivative, and (iv) a termination of his employment by us without cause or by Dr. Davidson for good reason.

(2) Based on the valuation of our common stock of $3.75 per share as of December 31, 2017.

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, the key terms of which are described below.

Mr. White

We entered into an employment agreement with Mr. White, our Chief Executive Officer and President, on December 11, 2017. Under the terms of the agreement, Mr. White is entitled to receive an annual base salary of $400,000 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 agreement, Mr. White was also awarded an option to purchase 724,315 shares of our common stock at an exercise price of $6.51 per share in February 2018 under our 2013 plan. 25% of the shares subject to the option vest 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 change in control, as defined in Mr. White's agreement, during such continued service. Pursuant to his agreement, Mr. White also entered into a confidentiality, inventions assignment, non-competition and non-solicitation agreement with us.

Pursuant to the terms of his 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 when his employment is terminated. If his employment is terminated on or before December 11, 2018, then he would not be entitled to severance benefits. If his employment is terminated after December 11, 2018 but before December 11, 2019, then he would be entitled to six months of severance benefits. If his employment is terminated after December 11, 2019, then he 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.

Mr. Degnan

We entered into an employment agreement with Chris Degnan, our Chief Financial Officer, in February 2018. Under the terms of the agreement, Mr. Degnan is entitled to receive an annual base salary of $325,000 and an annual bonus of up to 40% of his annual base salary based upon our board of directors' assessment of Mr. Degnan's performance and our attainment of targeted goals as set by the board of directors in their sole discretion. In accordance with the agreement, Mr. Degnan was also awarded an option to purchase 72,928 shares of our common stock at an exercise price of $6.86 per share in March 2018 under our 2013 plan. 25% of the shares subject to the option vest on March 5, 2019 (the first anniversary of Mr. Degnan's commencement of employment) and the remaining shares vest in 36 equal monthly installments thereafter, subject to Mr. Degnan's continued service and subject to full acceleration in the event of a change in control, as defined in Mr. Degnan's agreement, during such continued service. Pursuant to his agreement, Mr. Degnan also entered into a confidentiality, inventions assignment, non-competition and non-solicitation agreement with us.

Pursuant to the terms of his employment agreement, Mr. Degnan's employment is at will and may be terminated at any time by us or Mr. Degnan. If Mr. Degnan's employment is terminated by us without cause or by Mr. Degnan for good reason, then Mr. Degnan would be eligible to receive severance benefits. The length of severance benefits that Mr. Degnan would receive depends on when his employment is terminated. If his employment is terminated on or before March 5, 2019, then he would not be entitled to severance benefits. If his employment is terminated after March 5, 2019 but before March 5, 2020, then he would be entitled to six months of severance benefits. If his employment is terminated after March 5, 2020, then he would be entitled to 12 months of severance benefits. During the applicable severance period, Mr. Degnan 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. Degnan and his dependents under COBRA for the applicable severance period.

Ms. Palczuk

We entered into an employment agreement with Ms. Palczuk, our Chief Operating Officer, in February 2018. Under the terms of the agreement, Ms. Palczuk is entitled to receive an annual base salary of $350,000 and an annual bonus of up to 40% of her annual base salary based upon our board of directors' assessment of Ms. Palczuk's performance and our attainment of targeted goals as set by the board of directors in its sole discretion. In accordance with the agreement, Ms. Palczuk was awarded an option to purchase 113,768 shares of our common stock at an exercise price of $6.86 per share in February 2018 under our 2013 plan. 25% of the shares subject to the option vest on February 26, 2019 (the first anniversary of Ms. Palczuk's commencement of employment) and the remaining shares vest in 36 equal monthly installments thereafter, subject to Ms. Palczuk's continued service and subject to full acceleration in the event of a change in control, as defined in Ms. Palczuk's agreement, during such continued service. Pursuant to her agreement, Ms. Palczuk also entered into a confidentiality, inventions assignment, non-competition and non-solicitation agreement with us.

Pursuant to the terms of her employment agreement, Ms. Palczuk's employment is at will and may be terminated at any time by us or Ms. Palczuk. If Ms. Palczuk's employment is terminated by us without cause or by Ms. Palczuk for good reason, then Ms. Palczuk would be eligible to receive severance benefits. The length of severance benefits that Ms. Palczuk would receive depends on when her employment is terminated. If her employment is terminated on or before February 26, 2019, then she would not be entitled to severance benefits. If her employment is terminated after February 26, 2019 but before February 26, 2020, then she is entitled to six months of severance benefits. If her employment is terminated after February 26, 2020, then she is entitled to

12 months of severance benefits. During the applicable severance period, Ms. Palczuk would receive the following severance benefits, less applicable tax withholding:

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

Mr. Bonaccorso

We entered into an employment agreement with Mr. Bonaccorso, our Chief Commercial Officer, in January 2018. Under the terms of the agreement, Mr. Bonaccorso is entitled to receive an annual base salary of $350,000 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 employment, Mr. Bonaccorso was also awarded an option to purchase 102,100 shares of common stock at an exercise price of $6.51 per share in February 2018 under our 2013 plan. 25% of the shares subject to the option vest 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 change in control, as defined in Mr. Bonaccorso's agreement, during such continued service. Pursuant to his agreement, Mr. Bonaccorso also entered into a confidentiality, inventions assignment, non-competition and non-solicitation agreement with us.

Pursuant to the terms of his 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 when his employment is terminated. If his employment is terminated on or before February 7, 2019, then he would not be entitled to severance benefits. If his employment is terminated after February 7, 2019 but before February 7, 2020, then he would be entitled to six months of severance benefits. If his employment is terminated after February 7, 2020, then he 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.

Dr. Davidson

We entered into an employment agreement with Dr. Davidson, our Chief Scientific Officer, on December 2015. Under the terms of the agreement, Dr. Davidson was originally entitled to receive an annual base salary of $180,000, which was subsequently increased to $200,000 on January 1, 2016, increased to $220,000 on January 16, 2017 and increased to $300,000 on February 15, 2018, and an annual bonus of up to 35% of his annual base salary based upon our board of directors' assessment of Dr. Davidson's performance and our performance goals determined in consultation with Dr. Davidson. Dr. Davidson also entered into a confidentiality, inventions assignment, and non-solicitation agreement with us.

Pursuant to the terms of his employment agreement, Dr. Davidson's employment is at will and may be terminated at any time by us or Dr. Davidson. If Dr. Davidson's employment is terminated by us without cause

or by Dr. Davidson for good reason, then Dr. Davidson is entitled to receive the following severance benefits, less applicable tax withholdings:

- payment of his then-current base salary in accordance with normal payroll procedures for the twelve months following his termination date;
- payment or reimbursement of continued health coverage for Dr. Davidson and his dependents under COBRA for a period up to twelve months; and
- 100% of Dr. Davidson's then-outstanding and unvested restricted stock awards or other equity awards will become vested and exercisable.

In addition, Dr. Davidson's employment agreement provides that any then-outstanding and unvested restricted stock awards or other equity awards will become fully vested and exercisable immediately prior to a change in control of our company, as defined in Dr. Davidson's employment agreement.

Pursuant to a transition agreement entered into effective as of May 31, 2018 between us and Dr. Davidson, Dr. Davidson will resign from his position as our Chief Scientific Officer and from our board of directors effective on the earlier of the effective date of the registration statement of which this prospectus is a part or August 1, 2018. Upon Dr. Davidson's resignation, and pursuant to the terms of the transition agreement, Dr. Davidson will be 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, which will be updated upon his resignation.

In his role as a consultant, Dr. Davidson will provide 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 will receive a monthly consulting fee of $29,375 for his performance of transition services. Over the course of the first year of the consulting period, the number of hours per week that Dr. Davidson will work will decrease. After the first year of the consulting period, Dr. Davidson will receive $300 per hour for each additional hour of consulting services he provides.

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.

Dr. Burnett

We entered into an employment agreement with Dr. Burnett, our Chief Medical Officer, in March 2018. Under the terms of the agreement, Dr. Burnett is entitled to receive an annual base salary of $350,000 and an annual bonus of up to 40% of his annual base salary based upon our board of directors' assessment of Dr. Burnett's performance and our attainment of targeted goals as set by the board of directors in their sole discretion. In accordance with the agreement, Dr. Burnett was also awarded an option to purchase 87,514 shares

of our common stock at an exercise price of $8.72 per share in April 2018 under our 2013 plan. 25% of the shares subject to the option vest on April 4, 2019 (the first anniversary of Dr. Burnett's commencement of employment) and the remaining shares vest in 36 equal monthly installments thereafter, subject to Dr. Burnett's continued service. The option is subject to (i) partial acceleration with respect to the portion of the option that would have otherwise vested through April 4, 2020 in the event that we receive formal FDA approval of a new drug application on or before the second anniversary of the start date (with the remainder of option to resume vesting in accordance with the original vesting schedule following April 4, 2020), and (ii) full acceleration in the event of a change in control, as defined in Dr. Burnett's agreement, during such continued service. Pursuant to his agreement, Dr. Burnett also entered into a confidentiality, inventions assignment, non-competition and non-solicitation agreement with us. In the event Dr. Burnett decides to relocate to within 25 miles of West Chester, Pennsylvania, we will reimburse him for up to $30,000 of his reasonable out-of-pocket expenses related to such relocation.

Pursuant to the terms of his employment agreement, Dr. Burnett's employment is at will and may be terminated at any time by us or Dr. Burnett. If Dr. Burnett's employment is terminated by us without cause or by Dr. Burnett for good reason, then Dr. Burnett would be eligible to receive severance benefits. The length of severance benefits that Dr. Burnett would receive depends on when his employment is terminated. If his employment is terminated on or before April 4, 2019, then he would not be entitled to severance benefits. If his employment is terminated after April 4, 2019 but before April 4, 2020, then he would be entitled to six months of severance benefits. If his employment is terminated after April 4, 2020, then he would be entitled to 12 months of severance benefits. During the applicable severance period, Dr. Burnett 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 Dr. Burnett and his dependents under COBRA for the applicable severance period.

Equity Incentive Plans

2018 Equity Incentive Plan

We expect that our board of directors will adopt, and our stockholders will approve, prior to the closing of this offering our 2018 Equity Incentive Plan, or our 2018 plan. We do not expect to issue equity awards under our 2018 plan until after the closing of this offering. Our 2018 plan will provide 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 nonstatutory 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 will also provide for the grant of performance cash awards to our employees, consultants and directors.

Authorized Shares

The maximum number of shares of our common stock that may be issued under our 2018 plan is 3,738,199 shares. The number of shares of our common stock reserved for issuance under our 2018 plan will automatically increase on January 1 of each year, beginning on January 1 of the year after the closing of this offering and ending on 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 our board of directors. The maximum number of shares that may be issued pursuant to exercise of incentive stock options under the 2018 plan is 12,000,000.

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 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 adopts our 2018 plan.

2013 Equity Incentive Plan

General

Our board of directors adopted and our stockholders approved our 2013 Equity Incentive Plan, or 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 will be 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.

Share Reserve

As of March 31, 2018, we have reserved 1,540,001 shares of our common stock for issuance under our 2013 plan. As of March 31, 2018, options to purchase 1,156,048 shares of common stock, at exercise prices ranging from $0.89 to $6.86 per share, or a weighted-average exercise price of $6.13 per share, were outstanding under our 2013 plan. As of March 31, 2018, we had also granted 241,898 shares of restricted stock under our 2013 plan.

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 provides 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 may only be granted to employees.

Options

The exercise price of options granted under our 2013 plan may 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 the company that occurs on the date that any one person, or more than one person acting as a group, acquires

stock of the 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 the 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 the 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 the 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 the company's 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 the corporate structure of the company 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, alter, suspend or terminate our 2013 plan, provided that such action is approved by our stockholders to the extent stockholder approval is necessary and that such action does not impair the existing rights of any participant without such participant's written consent. As described above, our 2013 plan will terminate upon the effective date of our 2018 plan.

Limitations on Liability and Indemnification Matters

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

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

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

Our amended and restated certificate of incorporation and our amended and restated bylaws will provide that we are required to indemnify our directors to the fullest extent permitted by Delaware law. Our amended and restated bylaws will also provide that, upon satisfaction of certain conditions, we are required to advance expenses incurred by a director in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under the provisions of Delaware law. Our amended and restated bylaws will also provide our board of directors with discretion to indemnify our officers and employees when determined appropriate by the board.

We have entered into indemnification agreements with each of our directors and expect to enter into indemnification agreements with each of our executive officers prior to the closing of this offering. With certain exceptions, these agreements provide for indemnification for related expenses including, among other things, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors. We also maintain customary directors' and officers' liability insurance.

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

Rule 10b5-1 Sales Plans

Our directors and executive officers may adopt written plans, known as Rule 10b5-1 plans, in which they will contract with a broker to buy or sell shares of our common stock on a periodic basis. Under a Rule 10b5-1 plan, a broker executes trades pursuant to parameters established by the director or officer when entering into the plan, without further direction from them. The director or officer may amend a Rule 10b5-1 plan in some circumstances and may terminate a plan at any time. Our directors and executive officers also may buy or sell additional shares outside of a Rule 10b5-1 plan when they are not in possession of material nonpublic information subject to compliance with the terms of our insider trading policy. Prior to 180 days after the date of this offering, subject to early termination, the sale of any shares under such plan would be prohibited by the lock-up agreement that the director or officer has entered into with the underwriters.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following is a description of transactions since January 1, 2015 to which we have been a participant in which the amount involved exceeded or will exceed $120,000, and in which any of our directors, executive officers or holders of more than 5% of our voting securities, or any members of their immediate family, had or will have a direct or indirect material interest, other than compensation arrangements which are described under "Executive Compensation."

Participation in this Offering

Certain of our existing beneficial owners of more than 5% of our voting securities, including entities affiliated with certain of our directors, have agreed to purchase an aggregate of 1,500,000 shares of our common stock in this offering at the initial public offering price per share.

Sales of Series A Convertible Preferred Stock

In December 2015, we sold an aggregate of 21,302,972 shares of our Series A convertible preferred stock at a price of $0.5194 per share for proceeds of $10.4 million. 19,252,983 shares were sold to PBM VP Holdings, LLC, a beneficial owner of more than 5% of our voting securities, in exchange for approximately $10.0 million in cash, and Paul Manning, a member of our board of directors, has sole voting and dispositive power over the shares held by PBM VP Holdings, LLC. Pursuant to the Series A stock purchase agreement, PBM VP Holdings, LLC paid $1.5 million at closing and $0.5 million and $8.0 million in the years ended December 31, 2016 and 2017, respectively. Sean Stalfort and Jayson Rieger are also members of our board of directors that are affiliated with PBM VP Holdings, LLC. 344,059 shares were sold to Glenn Oclassen, a member of our board of directors, in exchange for approximately $50,000 in cash and the conversion of notes with principal and accrued interest of $102,959. 242,657 shares were jointly sold to Erin and Benjamin Davidson, an immediate family member of Matt Davidson, a director, executive officer and beneficial owner of more than 5% of our voting securities, in exchange for approximately $100,000 in cash and the conversion of notes with principal and accrued interest of $20,828. Each share of Series A convertible preferred stock is convertible into 0.583 shares of our common stock.

In June 2018, PBM VP Holdings, LLC distributed all of the shares it held to its beneficial owners, including Mr. Manning and entities controlled by Mr. Manning, for no additional consideration in accordance with the terms of its operating agreement. Under the terms of the distribution, Mr. Manning retains sole voting and shared dispositive power over all distributed shares through the completion of this offering, at which time Mr. Manning's voting and dispositive power over the distributed shares will terminate except with respect to any shares held by Mr. Manning or by entities controlled by Mr. Manning.

Sales of Series B Convertible Preferred Stock

In December 2017, we sold an aggregate of 1,937,984 shares of our Series B convertible preferred stock at a price of $2.58 per share for aggregate gross proceeds of approximately $5 million to Perceptive Life Sciences Master Fund, Ltd., a beneficial owner of more than 5% of our voting securities. Each share of Series B convertible preferred stock is convertible into 0.583 shares of our common stock.

Concurrent with the Company's sale of Series B convertible preferred stock, certain affiliates of PBM VP Holdings, LLC, which we refer to as the Co-Investors, including Sean Stalfort and Jayson Rieger, purchased from existing stockholders 291,967 shares of common stock and 176,128 shares of Series A convertible stock. In connection with such investment, such Co-Investors entered into co-investment and cooperation agreements, pursuant to which Paul Manning has sole voting and shared dispositive power over the shares held by the Co-Investors. Upon the completion of this offering, Mr. Manning's voting and dispositive power over the shares held by the Co-Investors will terminate except with respect to any shares held by entities controlled by Mr. Manning.

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 approximately $20 million. 2,193,463 shares 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 approximately $10 million. 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 approximately $10 million. In March 2018, we sold an additional 219,341 shares to certain other investors, for a purchase price of $1.0 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 is convertible into 0.583 shares of our common stock.

Investors' Rights Agreement, Voting Agreement and Right of First Refusal and Co-Sale Agreement

In connection with the sales of convertible preferred stock described above, we entered into an investors' rights agreement, a voting agreement and a right of first refusal and co-sale agreement with the holders of preferred stock, including each of the persons and entities listed in the table above.

The investors' rights agreement, among other things:

- grants our preferred stockholders specified registration rights with respect to shares of our common stock, including shares of common stock issued or issuable upon conversion of the shares of convertible preferred stock held by them;
- obligates us to deliver periodic financial statements to some of the stockholders who are parties to the investors' rights agreement; and
- grants a right of first refusal with respect to sales of our shares by us, subject to specified exclusions, which exclusions include the sale of the shares pursuant to this prospectus, to the stockholders who are parties to the investors' rights agreement.

For more information regarding the registration rights provided in the investors' rights agreement, please refer to the section titled "Description of Capital Stock — Registration Rights." The provisions of this agreement other than those relating to registration rights will terminate upon the closing of this offering.

The voting agreement, among other things, provides for the voting of shares with respect to the constituency of our board of directors and the voting of shares in favor of specified transactions approved by our board of directors and the requisite majority of holders of our outstanding preferred stock. The voting agreement will terminate upon the closing of this offering.

The right of first refusal and co-sale agreement, among other things, grants our investors rights of first refusal and co-sale with respect to proposed transfers of our securities by specified stockholders and grants us rights of first refusal with respect to proposed transfers of our securities by specified stockholders. The right of first refusal and co-sale agreement will terminate upon the closing of this offering.

Services Agreement with PBM Capital Group, LLC

In December 2015, we entered into a services agreement, which we refer to as the PBM Services Agreement, with PBM Capital Group, LLC, an affiliate of PBM VP Holdings, LLC, a beneficial owner of more than 5% of our common stock and 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.

In March 2018, we entered into an amendment to the PBM Services Agreement, effective April 1, 2018, pursuant to which we are required to pay a flat fee of $50,000 per month for these services. As amended, the PBM Services Agreement has a term until March 31, 2019. Pursuant to the PBM Services Agreement, we paid $30,000 to PBM Capital Group, LLC for each of the years ended December 31, 2016 and December 31, 2017, respectively.

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 will resign from his position as our Chief Scientific Officer and from our board of directors effective on the earlier of the effective date of the registration statement of which this prospectus is a part or August 1, 2018. Upon Dr. Davidson's resignation, and pursuant to the terms of the transition agreement, Dr. Davidson will be 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, which will be updated upon his resignation.

In his role as a consultant, Dr. Davidson will provide 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 will receive a monthly consulting fee of $29,375 for his performance of transition services. Over the course of the first year of the consulting period, the number of hours per week that Dr. Davidson will work will decrease. After the first year of the consulting period, Dr. Davidson will receive $300 per hour for each additional hour of consulting services he provides.

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

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

In addition, we have entered into indemnification agreements with each of our directors, and we expect to enter into indemnification agreements with each of our executive officers prior to the closing of this offering. For more information regarding these agreements, see "Executive Compensation — Limitations on Liability and Indemnification Matters."

Related Person Transaction Policy

Prior to this offering, we have not had a formal policy regarding approval of transactions with related parties. 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 that will become effective immediately upon the execution of the underwriting agreement for this offering. For purposes of our policy only, a related person transaction will be 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 will not be covered by this policy. A related person will be 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 that we expect to adopt prior to the closing of this offering, 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 will require 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.

PRINCIPAL STOCKHOLDERS

The following table sets forth information regarding beneficial ownership of our common stock as of March 31, 2018 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.

We have determined beneficial ownership in accordance with the rules of the SEC. Under these rules, beneficial ownership includes any shares of common stock as to which the individual or entity has sole or shared voting power or investment power. Applicable percentage ownership is based on 19,946,371 shares of common stock outstanding as of March 31, 2018, after giving effect to the conversion of shares of our convertible preferred stock outstanding as of March 31, 2018 into an aggregate of 16,246,872 shares of our common stock immediately prior to the closing of this offering. In computing the number of shares beneficially owned by an individual or entity and the percentage ownership of that person, shares of common stock subject to options held by such person that are currently exercisable or will become exercisable within 60 days of March 31, 2018 are considered outstanding, although these shares are not considered outstanding for purposes of computing the percentage ownership of any other person. The following table does not give effect to any shares that may be acquired by our stockholders, directors or executive officers pursuant to the reserved share program. The percentage of shares beneficially owned after the offering in the table below does not take into account (1) the termination of Mr. Manning's sole voting and shared dispositive power over the shares distributed by PBM VP Holdings, LLC and the shares held by the Co-Investors upon the completion of this offering, except with respect to any shares held by Mr. Manning or by entities controlled by Mr. Manning or (2) the resignations of Matt Davidson as our Chief Scientific Officer and from our board of directors and Jayson Rieger from our board of directors, in each case effective immediately prior to, and contingent upon, the effectiveness of the registration statement of which this prospectus is a part.

Certain of our existing stockholders, including entities affiliated with certain of our directors, have agreed to purchase an aggregate of 1,500,000 shares of our common stock in this offering at the initial public offering price per share. The following table does not reflect the purchases by these persons or entities or their affiliated entities, nor does it give effect to any shares that may be acquired by our stockholders, directors or executive officers pursuant to the reserved share program.

Unless noted otherwise, the address of all listed stockholders is c/o Verrica Pharmaceuticals Inc., 10 North High Street, Suite 200, West Chester, PA 19380.

Each of the stockholders listed has sole voting and investment power with respect to the shares beneficially owned by the stockholder unless noted otherwise, subject to community property laws where applicable.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned	
		Before Offering	After Offering
Greater than 5% Stockholders			
Entities affiliated with Paul B. Manning (1)	11,642,441	58.4%	46.7%
Perceptive Life Sciences Master Fund, Ltd. (2)	2,410,412	12.1	9.7
OrbiMed Private Investments VI, LP (3)	1,279,733	6.4	5.1
Directors and Named Executive Officers			
Ted White	—	—	—
Matt Davidson	3,103,723	15.6	12.4
Paul B. Manning (1)	11,642,441	58.4	46.7
Sean Stalfort (4)	421,639	2.1	1.7
Glenn Oclassen (5)	290,421	1.5	1.2
Jayson Rieger (4)	258,797	1.3	1.0
Mark Prygocki	—	—	—
Gary Goldenberg	—	—	—
All current executive officers and directors as a group (12 persons)	15,036,585	75.4	60.3

* Represents beneficial ownership of less than 1%.

(1) Consists of (a) 7,754,783 shares of common stock issuable upon conversion of preferred stock held by Mr. Manning, (b) 1,132,900 shares of common stock issuable upon conversion of preferred stock held by BKB Growth Investments, LLC ("BKB"), (c) 27,344 shares of common stock held by BKB, (d) 256,634 shares of common stock issuable upon conversion of preferred stock held by PBM Capital Investments, LLC ("PBMCI"), (e) an aggregate of 264,623 shares of common stock held by the Co-Investors, (f) an aggregate of 108,073 shares of common stock issuable upon conversion of preferred stock held by the Co-Investors and (g) 2,098,084 shares of common stock issuable upon conversion of preferred stock held by certain beneficial owners of PBM VP Holdings, LLC. In June 2018, PBM VP Holdings, LLC distributed all of the shares it previously held to its beneficial owners, including Mr. Manning and entities controlled by Mr. Manning, for no additional consideration in accordance with the terms of its operating agreement. Under the terms of the distribution, Mr. Manning retains sole voting and shared dispositive power over all distributed shares through the completion of this offering, at which time Mr. Manning's voting and dispositive power over the distributed shares, as well as the shares held by the Co-Investors, will terminate except with respect to any shares held by Mr. Manning or by entities controlled by Mr. Manning. 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) Consists of 2,410,412 shares of common stock issuable upon conversion of preferred stock held by Perceptive Life Sciences Master Fund, Ltd. The business address for Perceptive Life Sciences Master Fund Ltd. is 51 Astor Place, 10th Floor, New York, NY 10003. Joseph Edelman holds voting and/or dispositive power over the shares held by Perceptive Life Sciences Master Fund Ltd.

(3) Consists of 1,279,733 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) As Co-Investors, each of Mr. Stalfort and Mr. Rieger have entered into an agreement with PBM VP Holdings, LLC to assign the voting power of their shares to PBM VP Holdings, LLC. Mr. Manning has sole voting power and Mr. Stalfort and Mr. Rieger share investment power with respect to these shares. The business address for Mr. Stalfort and Mr. Rieger is 200 Garrett Street, Suite S, Charlottesville, VA 22902.

(5) Consists of 89,687 shares of common stock and 200,734 shares of common stock issuable upon conversion of preferred stock held by The Glenn A. Oclassen 2016 Trust dated November 30, 2016, for which Mr. Oclassen serves as trustee.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock and provisions of our amended and restated certificate of incorporation and amended and restated bylaws to be effective following the completion of this offering are summaries. You should also refer to the amended and restated certificate of incorporation and the amended and restated bylaws, which are filed as exhibits to the registration statement of which this prospectus is part.

General

Upon the completion of this offering, our amended and restated certificate of incorporation will authorize us 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 will be undesignated. Our board of directors may establish the rights and preferences of the preferred stock from time to time. As of March 31, 2018, we had outstanding 3,699,499 shares of common stock, held by 56 stockholders of record. As of March 31, 2018, after giving effect to the conversion of all of the outstanding shares of our convertible preferred stock into 16,246,872 shares of common stock, there would have been 19,946,371 shares of common stock issued and outstanding, held by 76 stockholders of record.

Common Stock

Voting Rights

Each holder of our common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. Under our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective upon consummation of this offering, our stockholders will 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 our 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 our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then-outstanding shares of preferred stock.

Rights and Preferences

Holders of 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.

Preferred Stock

As of March 31, 2018, there were outstanding 27,847,223 shares of convertible preferred stock, consisting of 21,302,972 shares of Series A convertible preferred stock, 1,937,984 shares of Series B convertible

preferred stock and 4,606,267 shares of Series C convertible preferred stock. All currently outstanding shares of convertible preferred stock will be converted into an aggregate of 16,246,872 shares of common stock immediately prior to the closing of this offering.

Following the closing of this offering, our board of directors will have the authority under our amended and restated certificate of incorporation, without further action by our stockholders, to issue up to 10,000,000 shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the rights, preferences and privileges of the shares of each wholly unissued series and any qualifications, limitations or restrictions thereon, and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding.

Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of our common stock. The purpose of authorizing our board of directors to issue preferred stock and determine its rights and preferences is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of us and may adversely affect the market price of our common stock and the voting and other rights of the holders of our common stock. It is not possible to state the actual effect of the issuance of any shares of preferred stock on the rights of holders of common stock until the board of directors determines the specific rights attached to that preferred stock.

We have no present plans to issue any shares of preferred stock following completion of this offering.

Options

As of March 31, 2018, under our 2013 plan, options to purchase an aggregate of 1,156,048 shares of common stock were outstanding. For additional information regarding the terms of this plan, see "Executive Compensation — Equity Incentive Plans."

Registration Rights

We, the holders of our existing convertible preferred stock and certain holders of our existing common stock have entered into an amended and restated investors' rights agreement. The registration rights provisions of this agreement provide those holders with demand, piggyback and Form S-3 registration rights with respect to the shares of common stock currently held by them and issuable to them upon conversion of our convertible preferred stock in connection with our initial public offering.

Demand Registration Rights

At any time after the earlier of February 20, 2022 and the date that is six months following the effective date of the registration statement of which this prospectus is a part, the holders of at least a majority of the outstanding registrable securities, two-thirds of the outstanding shares of Series A convertible preferred stock, two-thirds of the outstanding shares of Series B convertible preferred stock or two-thirds of the outstanding shares of Series C convertible preferred stock have the right to demand that we file a registration statement with respect to at least a majority of the registrable securities outstanding, or a lesser percent if the anticipated aggregate offering price, net of underwriting discounts and commissions, would exceed $15.0 million. These registration rights are subject to specified conditions and limitations, including the right of the underwriters, if any, to limit the number of shares included in any such registration under specified circumstances. Upon such a request, we are required to effect the registration as soon as practicable, but in any event no later than 90 days after the receipt of such request. An aggregate of 19,350,595 shares of common stock will be entitled to these demand registration rights.

Piggyback Registration Rights

If we propose to register any of our securities under the Securities Act either for our own account or for the account of other stockholders, the holders of registrable securities will each be entitled to notice of the registration and will be entitled to include their shares of common stock in the registration statement. These piggyback registration rights are subject to specified conditions and limitations, including the right of the underwriters to limit the number of shares included in any such registration under specified circumstances. An aggregate of 19,350,595 shares of common stock will be entitled to these piggyback registration rights.

Registration on Form S-3

At any time after we become eligible to file a registration statement on Form S-3, the holders of at least a majority of the outstanding registrable securities, two-thirds of the outstanding shares of Series A convertible preferred stock, two-thirds of the outstanding shares of Series B convertible preferred stock or two-thirds of the outstanding shares of Series C convertible preferred stock will be entitled to request to have such shares registered by us on a Form S-3 registration statement. These Form S-3 registration rights are subject to other specified conditions and limitations, including the condition that the anticipated aggregate offering price, net of underwriting discounts and commissions, exceeds $5.0 million. Upon receipt of this request, the holders of registrable securities will each be entitled to participate in this registration. An aggregate of 19,350,595 shares of common stock will be entitled to these Form S-3 registration rights.

Expenses of Registration

We are required to pay all expenses, including fees and expenses of one counsel to represent the selling stockholders (up to $75,000 total), relating to any demand, piggyback or Form S-3 registration, other than underwriting discounts and commissions, stock transfer taxes and any additional fees of counsel for the selling stockholders, subject to specified conditions and limitations. We are not required to pay registration expenses if a demand registration request is withdrawn at the request of a majority of holders of registrable securities to be registered, unless holders of a majority of the registrable securities agree to forfeit their right to one demand registration.

The investors' rights agreement contains customary cross-indemnification provisions, pursuant to which we are obligated to indemnify the selling stockholders in the event of material misstatements or omissions in the applicable registration statement attributable to us, and the selling stockholders are obligated to indemnify us for material misstatements or omissions in the registration statement attributable to them, subject to certain limitations.

Termination of Registration Rights

The registration rights granted under the investors' rights agreement will terminate upon the earlier of the fifth anniversary of the closing of this offering or a liquidation event.

Anti-Takeover Provisions

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding, but not the outstanding voting stock owned by the interested stockholder, those shares owned (i) by persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines a "business combination" to include the following:

- any merger or consolidation involving the corporation 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.

Certificate of Incorporation and Bylaws to be in Effect upon the Closing of this Offering

Our amended and restated certificate of incorporation to be in effect upon the completion of this offering, or our restated certificate, will provide for our board of directors to be divided into three classes with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Because our 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 our directors. Our restated certificate and our amended and restated bylaws to be effective upon the completion of this offering, or our restated bylaws, will also provide that directors may be removed by the stockholders only for cause upon the vote of 66 2/3% or more of our outstanding common stock. Furthermore, the authorized number of directors may be changed only by resolution of the board of directors, and vacancies and newly created directorships on the board of directors may, except as otherwise required by law or determined by the board, only be filled by a majority vote of the directors then serving on the board, even though less than a quorum.

Our restated certificate and restated bylaws will 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. Our restated bylaws will also provide that only our Chairman of the board, Chief Executive Officer or the board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors may call a special meeting of stockholders.

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

Our restated certificate and restated bylaws will provide that the stockholders cannot amend many of the provisions described above except by a vote of 66 2/3% or more of our outstanding common stock. As described in "—Preferred Stock" above, our restated certificate will give our board of directors the authority, without further action by our stockholders, to issue up to 10,000,000 shares of preferred stock in one or more series.

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

These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and its policies and to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to reduce our vulnerability to hostile takeovers and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of delaying changes in our control or management. As a consequence, these provisions may also inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts. We believe that the benefits of these provisions, including increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure our company, outweigh the disadvantages of discouraging takeover proposals, because negotiation of takeover proposals could result in an improvement of their terms.

Choice of Forum

Our restated certificate will provide that the Court of Chancery of the state of Delaware will be the exclusive forum for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a breach of fiduciary duty;
- any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our restated certificate, or our amended and restated bylaws; or
- any action asserting a claim against us 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 our restated certificate to be inapplicable or unenforceable in such action.

Our restated certificate will further provide 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 our common stock is American Stock Transfer & Trust Company. The transfer agent's address is 6201 15th Avenue, Brooklyn, NY 11219.

Stock Exchange Listing

Our common stock has been approved for listing on The Nasdaq Global Market under the trading symbol "VRCA."

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, no public market existed for our common stock. Future sales of our common stock in the public market, or the availability of such shares for sale in the public market, could adversely affect market prices prevailing from time to time. As described below, only a limited number of shares will be available for sale shortly after this offering due to contractual and legal restrictions on resale. Nevertheless, sales of our common stock in the public market after such restrictions lapse, or the perception that those sales may occur, could adversely affect the prevailing market price at such time and our ability to raise equity capital in the future.

Based on the number of shares outstanding as of March 31, 2018, upon the closing of this offering and assuming no exercise of the underwriters' option to purchase additional shares, 24,946,371 shares of common stock will be outstanding, assuming no outstanding options are exercised. All of the shares of common stock sold in this offering will be freely tradable without restrictions or further registration under the Securities Act, except for any shares sold to our "affiliates," as that term is defined under Rule 144 under the Securities Act. The remaining 19,946,371 shares of common stock held by existing stockholders are "restricted securities," as that term is defined in Rule 144 under the Securities Act. Restricted securities may be sold in the public market only if registered or if their resale qualifies for exemption from registration described below under Rule 144 promulgated under the Securities Act or another available exemption.

As a result of the lock-up agreements described below and the provisions of Rules 144 and 701 under the Securities Act, the shares of common stock that will be deemed restricted securities after this offering will be available for sale in the public market as follows:

- none of the existing restricted shares will be eligible for immediate sale upon the completion of this offering; and
- substantially all of the 19,946,371 restricted shares will be eligible for sale in the public market upon expiration of lock-up agreements 180 days after the date of this prospectus, subject in certain circumstances to the volume, manner of sale and other limitations under Rule 144 and Rule 701 under the Securities Act, which are summarized below.

Rule 144

In general, non-affiliate persons who have beneficially owned restricted shares of our common stock for at least six months, and any affiliate of the company who owns either restricted or unrestricted shares of our common stock, are entitled to sell their securities without registration with the SEC under an exemption from registration provided by Rule 144 under the Securities Act.

Non-Affiliates

Any person who is not deemed to have been one of our affiliates at the time of, or at any time during the three months preceding, a sale may sell an unlimited number of restricted securities under Rule 144 if:

- the restricted securities have been held for at least six months, including the holding period of any prior owner other than one of our affiliates (subject to certain exceptions);
- we have been subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale; and
- we are current in our Exchange Act reporting at the time of sale.

Any person who is not deemed to have been an affiliate of ours at the time of, or at any time during the three months preceding, a sale and has held the restricted securities for at least one year, including the holding

period of any prior owner other than one of our affiliates, will be entitled to sell an unlimited number of restricted securities without regard to the length of time we have been subject to Exchange Act periodic reporting or whether we are current in our Exchange Act reporting. Non-affiliate resales are not subject to the manner of sale, volume limitation or notice filing provisions of Rule 144.

Affiliates

Persons seeking to sell restricted securities who are our affiliates at the time of, or any time during the three months preceding, a sale, would be subject to the restrictions described above. They are also subject to additional restrictions, by which such person would be required to comply with the manner of sale and notice provisions of Rule 144 and would be entitled to sell within any three-month period only that number of securities that does not exceed the greater of either of the following:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately 250,000 shares immediately after the completion of this offering based on the pro forma number of shares outstanding as of March 31, 2018; or

- the average weekly trading volume of our common stock on the stock exchange on which our shares are listed during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Additionally, persons who are our affiliates at the time of, or any time during the three months preceding, a sale may sell unrestricted securities under the requirements of Rule 144 described above, without regard to the six month holding period of Rule 144, which does not apply to sales of unrestricted securities.

Rule 701

Rule 701 under the Securities Act, as in effect on the date of this prospectus, permits resales of shares in reliance upon Rule 144 but without compliance with certain restrictions of Rule 144, including the holding period requirement. Most of our employees, executive officers or directors who purchased shares under a written compensatory plan or contract may be entitled to rely on the resale provisions of Rule 701, but all holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling their shares. However, substantially all Rule 701 shares are subject to lock-up agreements as described below and in the section titled “Underwriting” and will become eligible for sale upon the expiration of the restrictions set forth in those agreements.

Form S-8 Registration Statements

We intend to file one or more registration statements on Form S-8 under the Securities Act to register all shares of common stock subject to outstanding stock options and common stock issued or issuable under our 2013 plan and 2018 plan. We expect to file the registration statement covering shares offered pursuant to our stock plans as soon as practicable after the closing of this offering, permitting the resale of such shares by non-affiliates in the public market without restriction under the Securities Act and the sale by affiliates in the public market, subject to compliance with the resale provisions of Rule 144 and expiration or release from the terms of the lock-up agreements described above.

Lock-up Agreements

We, our executive officers and directors and substantially all of the holders of our common stock outstanding on the date of this prospectus have entered into lock-up agreements with the underwriters or otherwise agreed, subject to certain exceptions, that we and they will not, directly or indirectly, offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale, or otherwise dispose of or hedge any

of our shares of common stock, any options or warrants to purchase shares of our common stock, or any securities convertible into, or exchangeable for or that represent the right to receive shares of our common stock, without the prior written consent of Merrill Lynch, Pierce, Fenner & Smith Incorporated and Jefferies LLC for a period of 180 days from the date of this prospectus.

Registration Rights

Upon the closing of this offering, the holders of 19,350,595 shares of our common stock, including common stock issuable upon the conversion of our preferred stock, or their transferees, will be entitled to specified rights with respect to the registration of their registrable shares under the Securities Act, subject to certain limitations and the expiration, waiver or termination of the lock-up agreements. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act immediately upon effectiveness of the registration. See "Description of Capital Stock—Registration Rights" for additional information.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS

The following is a discussion of the material U.S. federal income tax considerations applicable to non-U.S. holders (as defined below) with respect to their ownership and disposition of shares of our common stock issued pursuant to this offering, but does not purport to be a complete analysis of all potential tax effects. All prospective non-U.S. holders of our common stock should consult their own tax advisors with respect to the U.S. federal income tax consequences of the purchase, ownership and disposition of our common stock, as well as any consequences arising under the U.S. estate tax or under the laws of any other taxing jurisdiction, including any state, local and non-U.S. tax consequences and any U.S. federal non-income tax consequences. In general, a non-U.S. holder means a beneficial owner of our common stock (other than an entity or arrangement treated as a partnership for U.S. federal income tax purposes) that is not, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation, or an entity treated as a corporation for U.S. federal income tax purposes, created or organized in the United States or under the laws of the United States or of any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust if (1) a U.S. court can exercise primary supervision over the trust's administration and one or more U.S. persons have the authority to control all of the trust's substantial decisions or (2) the trust has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a U.S. person.

This discussion is based on current provisions of the U.S. Internal Revenue Code of 1986, as amended, which we refer to as the Code, existing U.S. Treasury Regulations promulgated thereunder, published administrative rulings and judicial decisions, all as in effect as of the date of this prospectus supplement. These laws are subject to change and to differing interpretation, possibly with retroactive effect. Any change or differing interpretation could alter the tax consequences to non-U.S. holders described in this prospectus supplement.

This discussion is limited to non-U.S. holders that hold shares of our common stock as a capital asset within the meaning of Section 1221 of the Code (generally, for investment). This discussion does not address all aspects of U.S. federal income taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances, nor does it address any aspects of U.S. estate or gift tax, or any state, local or non-U.S. taxes. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as corporations that accumulate earnings to avoid U.S. federal income tax, tax-exempt organizations or governmental organizations, banks, financial institutions, insurance companies, brokers, dealers or traders in securities, commodities or currencies, tax-qualified retirement plans, holders subject to the alternative minimum tax or Medicare contribution tax, holders holding our common stock as part of a hedge, straddle or other risk reduction strategy, conversion transaction or other integrated investment, holders deemed to sell our common stock under the constructive sale provisions of the Code, controlled foreign corporations, passive foreign investment companies, persons subject to special tax accounting rules as a result of any item of gross income with respect to the stock being taken into account in an applicable financial statement, persons who hold or receive our common stock pursuant to the exercise of any employee stock option or otherwise as compensation, tax-qualified retirement plans, "qualified foreign pension funds" as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds, and U.S. expatriates and certain former citizens or long-term residents of the United States.

In addition, this discussion does not address the tax treatment of partnerships (or entities or arrangements that are treated as partnerships for U.S. federal income tax purposes) or persons that hold their

common stock through such partnerships or such entities or arrangements. If a partnership, including any entity or arrangement treated as a partnership for U.S. federal income tax purposes, holds shares of our common stock, the U.S. federal income tax treatment of a partner in such partnership will generally depend upon the status of the partner, the activities of the partnership and certain determinations made at the partner level. Such partners and partnerships should consult their own tax advisors regarding the tax consequences of the purchase, ownership and disposition of our common stock.

There can be no assurance that the Internal Revenue Service, which we refer to as the IRS, will not challenge one or more of the tax consequences described herein, and we have not obtained, nor do we intend to obtain, a ruling with respect to the U.S. federal income tax consequences with respect to the matters discussed below.

Distributions on our Common Stock

Distributions, if any, on our common stock generally will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's adjusted tax basis in the common stock. Any remaining excess will be treated as capital gain from the sale or exchange of such common stock, subject to the tax treatment described below in "—Gain on Sale, Exchange or Other Disposition of our Common Stock."

Subject to the discussions below regarding effectively connected income, backup withholding and foreign accounts, dividends paid to a non-U.S. holder will generally be subject to withholding of U.S. federal income tax at a 30% rate on the gross amount of the dividends, or such lower rate as may be specified by an applicable income tax treaty. A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty generally will be required to provide a properly executed IRS Form W-8BEN or W-8BEN-E (or successor form) and satisfy relevant certification and other requirements. Non-U.S. holders are urged to consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements. To claim the exemption, the non-U.S. holder must generally furnish to us or the applicable withholding agent a valid IRS Form W-8ECI (or applicable successor form), certifying that the dividends are effectively connected with the non-U.S. holder's conduct of a trade or business within the United States. However, such U.S. effectively connected income, net of specified deductions and credits, is taxed at the same U.S. federal income tax rates applicable to U.S. persons (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. Non-U.S. holders should consult their tax advisors regarding their entitlement to benefits under any applicable tax treaties.

Gain on Sale, Exchange or Other Disposition of our Common Stock

Subject to the discussions below regarding backup withholding and foreign accounts, in general, a non-U.S. holder will not be subject to any U.S. federal income tax on any gain realized upon such holder's sale, exchange or other disposition of shares of our common stock unless:

- the gain is effectively connected with a U.S. trade or business of the non-U.S. holder and, if an applicable income tax treaty so provides, is attributable to a permanent establishment or a fixed

base maintained in the United States by such non-U.S. holder, in which case the non-U.S. holder generally will be taxed at the U.S. federal income tax rates applicable to U.S. persons (as defined in the Code) and, if the non-U.S. holder is a foreign corporation, the branch profits tax described above in "Distributions on our Common Stock" may also apply;

- the non-U.S. holder is a nonresident alien individual who is present in the United States for 183 days or more in the taxable year of the disposition and certain other conditions are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the net gain derived from the disposition, which may be offset by U.S. source capital losses of the non-U.S. holder, if any (even though the individual is not considered a resident of the United States), provided the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses; or

- our common stock constitutes a U.S. real property interest because we are, or have been, at any time during the five-year period preceding such disposition (or the non-U.S. holder's holding period, if shorter) a "U.S. real property holding corporation." Even if we are or become a U.S. real property holding corporation, provided that our common stock is regularly traded on an established securities market, our common stock will be treated as a U.S. real property interest only with respect to a non-U.S. holder that holds more than 5% of our outstanding common stock, directly or indirectly, actually or constructively, during the shorter of the five-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. In such case, such non-U.S. holder generally will be taxed on its net gain derived from the disposition at the graduated U.S. federal income tax rates applicable to U.S. persons (as defined in the Code), except that the branch profits tax will not apply. Generally, a corporation is a U.S. real property holding corporation only if the fair market value of its U.S. real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we do not believe that we are, or have been, a U.S. real property holding corporation, or that we are likely to become one in the future. We expect that our common stock will be regularly traded on an established securities market, but no assurance can be provided that our common stock will be regularly traded.

Backup Withholding and Information Reporting

We must report annually to the IRS and to each non-U.S. holder the gross amount of the dividends on our common stock paid to such holder and the tax withheld, if any, with respect to such dividends. Non-U.S. holders will have to comply with specific certification procedures to establish that the holder is not a U.S. person (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to dividends on our common stock. U.S. backup withholding generally will not apply to a non-U.S. holder who provides a properly executed IRS Form W-8BEN, W-8BEN-E, W8ECI or otherwise establishes an exemption.

Information reporting and backup withholding will generally apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a non-U.S. broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a non-U.S. broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their own tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is incorporated under the provisions of a specific treaty or agreement.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder may be allowed as a credit against the non-U.S. holder's U.S. federal income tax liability, if any, and may entitle such holder to a refund, provided that the required information is timely furnished to the IRS.

Foreign Account Tax Compliance Act

The Code generally imposes a U.S. federal withholding tax of 30% on dividends and the gross proceeds of a disposition of our common stock paid to a "foreign financial institution" (as specifically defined in the Code for this purpose), unless such institution enters into an agreement with the U.S. government to, among other things, withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding U.S. account holders of such institution (which may include certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners). Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the United States governing these withholding and reporting requirements may be subject to different rules. This U.S. federal withholding tax of 30% also applies to dividends and the gross proceeds of a disposition of our common stock paid to a "non-financial foreign entity" (as specifically defined in the Code), unless such entity provides the withholding agent with either a certification that it does not have any substantial direct or indirect U.S. owners or information regarding substantial direct and indirect U.S. owners of the entity. The withholding tax described above will not apply if the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from the rules. The withholding provisions described above currently apply to dividends on our common stock and will apply with respect to gross proceeds of a sale or other disposition of our common stock on or after January 1, 2019. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. Non-U.S. holders are encouraged to consult with their own tax advisors regarding the possible implications of the legislation on their investment in our common stock.

EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR REGARDING THE TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED OR RECENTLY ENACTED CHANGE IN APPLICABLE LAW, AS WELL AS TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL, NON-U.S. OR U.S. FEDERAL NON-INCOME TAX LAWS.

UNDERWRITING

Merrill Lynch, Pierce, Fenner & Smith Incorporated, Jefferies LLC and Cowen and Company, LLC are acting as representatives of each of the underwriters named below. Subject to the terms and conditions set forth in an underwriting agreement among us and the underwriters, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the number of shares of common stock set forth opposite its name below.

Underwriter	Number of Shares
Merrill Lynch, Pierce, Fenner & Smith Incorporated	2,000,000
Jefferies LLC	1,750,000
Cowen and Company, LLC	1,250,000
Total	5,000,000

Subject to the terms and conditions set forth in the underwriting agreement, the underwriters have agreed, severally and not jointly, to purchase all of the shares sold under the underwriting agreement if any of these shares are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make in respect of those liabilities.

The underwriters are offering the shares, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel, including the validity of the shares, and other conditions contained in the underwriting agreement, such as the receipt by the underwriters of officer's certificates and legal opinions. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commissions and Discounts

The representatives have advised us that the underwriters propose initially to offer the shares to the public at the public offering price set forth on the cover page of this prospectus and to dealers at that price less a concession not in excess of $0.63 per share. After the initial offering, the public offering price, concession or any other term of the offering may be changed.

The following table shows the public offering price, underwriting discount and proceeds before expenses to us. The information assumes either no exercise or full exercise by the underwriters of their option to purchase additional shares.

	Per Share	Without Option	With Option
Public offering price	$15.00	$75,000,000	$86,250,000
Underwriting discount	$1.05	$5,250,000	$6,037,500
Proceeds, before expenses, to us	$13.95	$69,750,000	$80,212,500

The expenses of the offering, not including the underwriting discount, are estimated at $1.8 million and are payable by us. We have also agreed to reimburse the underwriters for their expenses relating to clearance of this offering with the Financial Industry Regulatory Authority in an amount up to $35,000.

Option to Purchase Additional Shares

We have granted an option to the underwriters, exercisable for 30 days after the date of this prospectus, to purchase up to 750,000 additional shares at the public offering price, less the underwriting discount. If the underwriters exercise this option, each will be obligated, subject to conditions contained in the underwriting agreement, to purchase a number of additional shares proportionate to that underwriter's initial amount reflected in the above table.

Reserved Share Program

At our request, the underwriters have reserved for sale, at the initial public offering price, up to 5% of the shares offered by this prospectus for sale to some of our directors, officers, employees, business associates and related persons. If these persons purchase reserved shares it will reduce the number of shares available for sale to the general public. Any reserved shares that are not so purchased will be offered by the underwriters to the general public on the same terms as the other shares offered by this prospectus.

No Sales of Similar Securities

We, our executive officers and directors and substantially all of our other existing security holders have agreed not to sell or transfer any common stock or securities convertible into, exchangeable for, exercisable for, or repayable with common stock, for 180 days after the date of this prospectus without first obtaining the written consent of Merrill Lynch, Pierce, Fenner & Smith Incorporated and Jefferies LLC. Specifically, we and these other persons have agreed, with certain limited exceptions, not to directly or indirectly

- offer, pledge, sell or contract to sell any common stock,
- sell any option or contract to purchase any common stock,
- purchase any option or contract to sell any common stock,
- grant any option, right or warrant for the sale of any common stock,
- lend or otherwise dispose of or transfer any common stock,
- request or demand that we file or make a confidential submission of a registration statement related to the common stock, or
- enter into any swap or other agreement that transfers, in whole or in part, the economic consequence of ownership of any common stock whether any such swap or transaction is to be settled by delivery of shares or other securities, in cash or otherwise.

This lock-up provision applies to common stock and to securities convertible into or exchangeable or exercisable for or repayable with common stock. It also applies to common stock owned now or acquired later by the person executing the agreement or for which the person executing the agreement later acquires the power of disposition.

Nasdaq Global Market Listing

Our common stock has been approved for listing on The Nasdaq Global Market under the symbol "VRCA."

Before this offering, there has been no public market for our common stock. The initial public offering price will be determined through negotiations between us and the representatives. In addition to prevailing market conditions, the factors to be considered in determining the initial public offering price are

- the valuation multiples of publicly traded companies that the representatives believe to be comparable to us,
- our financial information,
- the history of, and the prospects for, our company and the industry in which we compete,
- an assessment of our management, its past and present operations, and the prospects for, and timing of, our future revenues,
- the present state of our development, and
- the above factors in relation to market values and various valuation measures of other companies engaged in activities similar to ours.

An active trading market for the shares may not develop. It is also possible that after the offering the shares will not trade in the public market at or above the initial public offering price.

The underwriters do not expect to sell more than 5% of the shares in the aggregate to accounts over which they exercise discretionary authority.

Price Stabilization, Short Positions and Penalty Bids

Until the distribution of the shares is completed, SEC rules may limit underwriters and selling group members from bidding for and purchasing our common stock. However, the representatives may engage in transactions that stabilize the price of the common stock, such as bids or purchases to peg, fix or maintain that price.

In connection with the offering, the underwriters may purchase and sell our common stock in the open market. These transactions may include short sales, purchases on the open market to cover positions created by short sales and stabilizing transactions. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. “Covered” short sales are sales made in an amount not greater than the underwriters’ option to purchase additional shares described above. The underwriters may close out any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option granted to them. “Naked” short sales are sales in excess of such option. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of our common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of shares of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Similar to other purchase transactions, the underwriters’ purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a

decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. The underwriters may conduct these transactions on The Nasdaq Global Market, in the over-the-counter market or otherwise.

Neither we nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. In addition, neither we nor any of the underwriters make any representation that the representatives will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

Electronic Distribution

In connection with the offering, certain of the underwriters or securities dealers may distribute prospectuses by electronic means, such as e-mail.

Other Relationships

Some of the underwriters and their affiliates have engaged in, and may in the future engage in, investment banking and other commercial dealings in the ordinary course of business with us or our affiliates. They have received, or may in the future receive, customary fees and commissions for these transactions.

In addition, in the ordinary course of their business activities, the underwriters and their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

European Economic Area

In relation to each member state of the European Economic Area, no offer of ordinary shares which are the subject of the offering has been, or will be made to the public in that Member State, other than under the following exemptions under the Prospectus Directive:

(a) to any legal entity which is a qualified investor as defined in the Prospectus Directive;

(b) to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the Representatives for any such offer; or

(c) in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of ordinary shares referred to in (a) to (c) above shall result in a requirement for the Company or any Representative to publish a prospectus pursuant to Article 3 of the Prospectus Directive, or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

Each person located in a Member State to whom any offer of ordinary shares is made or who receives any communication in respect of an offer of ordinary shares, or who initially acquires any ordinary shares will be deemed to have represented, warranted, acknowledged and agreed to and with each Representative and the Company that (1) it is a "qualified investor" within the meaning of the law in that Member State implementing Article 2(1)(e) of the Prospectus Directive; and (2) in the case of any ordinary shares acquired by it as a financial intermediary as that term is used in Article 3(2) of the Prospectus Directive, the ordinary shares acquired by it in

the offer have not been acquired on behalf of, nor have they been acquired with a view to their offer or resale to, persons in any Member State other than qualified investors, as that term is defined in the Prospectus Directive, or in circumstances in which the prior consent of the Representatives has been given to the offer or resale; or where ordinary shares have been acquired by it on behalf of persons in any Member State other than qualified investors, the offer of those ordinary shares to it is not treated under the Prospectus Directive as having been made to such persons.

The Company, the Representatives and their respective affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgments and agreements.

This prospectus has been prepared on the basis that any offer of shares in any Member State will be made pursuant to an exemption under the Prospectus Directive from the requirement to publish a prospectus for offers of shares. Accordingly any person making or intending to make an offer in that Member State of shares which are the subject of the offering contemplated in this prospectus may only do so in circumstances in which no obligation arises for the Company or any of the Representatives to publish a prospectus pursuant to Article 3 of the Prospectus Directive in relation to such offer. Neither the Company nor the Representatives have authorized, nor do they authorize, the making of any offer of shares in circumstances in which an obligation arises for the Company or the Representatives to publish a prospectus for such offer.

For the purposes of this provision, the expression an "offer of ordinary shares to the public" in relation to any ordinary shares in any Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the ordinary shares to be offered so as to enable an investor to decide to purchase or subscribe the ordinary shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression "Prospectus Directive" means Directive 2003/71/EC (as amended) and includes any relevant implementing measure in each Member State.

The above selling restriction is in addition to any other selling restrictions set out below.

Notice to Prospective Investors in the United Kingdom

In addition, in the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are "qualified investors" (as defined in the Prospectus Directive) (i) who have professional experience in matters relating to investments falling within Article 19 (5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (the "Order") and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons"). This document must not be acted on or relied on in the United Kingdom by persons who are not relevant persons. In the United Kingdom, any investment or investment activity to which this document relates is only available to, and will be engaged in with, relevant persons.

Notice to Prospective Investors in Switzerland

The shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange ("SIX") or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the shares or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company, the shares have been or will be filed with or approved by any Swiss regulatory authority. In particular,

this document will not be filed with, and the offer of shares will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA (FINMA), and the offer of shares has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes ("CISA"). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares.

Notice to Prospective Investors in the Dubai International Financial Centre

This prospectus relates to an Exempt Offer in accordance with the Offered Securities Rules of the Dubai Financial Services Authority ("DFSA"). This prospectus is intended for distribution only to persons of a type specified in the Offered Securities Rules of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for the prospectus. The shares to which this prospectus relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the shares offered should conduct their own due diligence on the shares. If you do not understand the contents of this prospectus you should consult an authorized financial advisor.

Notice to Prospective Investors in Australia

No placement document, prospectus, product disclosure statement or other disclosure document has been lodged with the Australian Securities and Investments Commission ("ASIC"), in relation to the offering. This prospectus does not constitute a prospectus, product disclosure statement or other disclosure document under the Corporations Act 2001 (the "Corporations Act"), and does not purport to include the information required for a prospectus, product disclosure statement or other disclosure document under the Corporations Act.

Any offer in Australia of the shares may only be made to persons (the "Exempt Investors") who are "sophisticated investors" (within the meaning of section 708(8) of the Corporations Act), "professional investors" (within the meaning of section 708(11) of the Corporations Act) or otherwise pursuant to one or more exemptions contained in section 708 of the Corporations Act so that it is lawful to offer the shares without disclosure to investors under Chapter 6D of the Corporations Act.

The shares applied for by Exempt Investors in Australia must not be offered for sale in Australia in the period of 12 months after the date of allotment under the offering, except in circumstances where disclosure to investors under Chapter 6D of the Corporations Act would not be required pursuant to an exemption under section 708 of the Corporations Act or otherwise or where the offer is pursuant to a disclosure document which complies with Chapter 6D of the Corporations Act. Any person acquiring shares must observe such Australian on-sale restrictions.

This prospectus contains general information only and does not take account of the investment objectives, financial situation or particular needs of any particular person. It does not contain any securities recommendations or financial product advice. Before making an investment decision, investors need to consider whether the information in this prospectus is appropriate to their needs, objectives and circumstances, and, if necessary, seek expert advice on those matters.

Notice to Prospective Investors in Hong Kong

The shares have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance. No advertisement, invitation or document relating to the shares has been or may be issued or has been or may be in the possession of any person

for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance and any rules made under that Ordinance.

Notice to Prospective Investors in Japan

The shares have not been and will not be registered under the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948, as amended) and, accordingly, will not be offered or sold, directly or indirectly, in Japan, or for the benefit of any Japanese Person or to others for re-offering or resale, directly or indirectly, in Japan or to any Japanese Person, except in compliance with all applicable laws, regulations and ministerial guidelines promulgated by relevant Japanese governmental or regulatory authorities in effect at the relevant time. For the purposes of this paragraph, "Japanese Person" shall mean any person resident in Japan, including any corporation or other entity organized under the laws of Japan.

Notice to Prospective Investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275, of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares pursuant to an offer made under Section 275 of the SFA except:

(a) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

(b) where no consideration is or will be given for the transfer;

(c) where the transfer is by operation of law;

(d) as specified in Section 276(7) of the SFA; or

(e) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Notice to Prospective Investors in Canada

The shares may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 *Prospectus Exemptions* or subsection 73.3(1) of the *Securities Act* (Ontario), and are permitted clients, as defined in National Instrument 31-103 *Registration Requirements, Exemptions and Ongoing Registrant Obligations*. Any resale of the shares must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 (or, in the case of securities issued or guaranteed by the government of a non-Canadian jurisdiction, section 3A.4) of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

LEGAL MATTERS

The validity of the shares of common stock offered hereby will be passed upon for us by Cooley LLP, New York, New York. As of the date of this prospectus, a partner of Cooley LLP beneficially owns an aggregate of 4,926 shares of common stock and 1,733 shares of common stock issuable upon conversion shares of our Series A preferred stock. Certain legal matters will be passed upon for the underwriters by Latham & Watkins LLP, New York, New York.

EXPERTS

The financial statements of Verrica Pharmaceuticals Inc. as of December 31, 2016 and 2017, and for each of the years in the two-year period ended December 31, 2017 have been included herein and in the registration statement in reliance on the report of KPMG LLP, independent registered public accounting firm, appearing elsewhere herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act, with respect to the shares of common stock being offered by this prospectus. This prospectus, which constitutes part of the registration statement, does not contain all of the information in the registration statement and its exhibits. For further information with respect to our company and the common stock offered by this prospectus, we refer you to the registration statement and its exhibits. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You can read our SEC filings, including the registration statement, over the internet at the SEC's website at www.sec.gov. You may also read and copy any document we file with the SEC at its public reference room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You may also obtain copies of these documents at prescribed rates by writing to the Public Reference Section of the SEC at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference facilities.

Upon completion of this offering, we will be subject to the information reporting requirements of the Exchange Act, and we will file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information will be available for inspection and copying at the public reference room and website of the SEC referred to above. We also maintain a website at www.verrica.com, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information contained in, or that can be accessed through, our website is not part of, and is not incorporated into, this prospectus.

VERRICA PHARMACEUTICALS INC.
Index to Financial Statements

Report of Independent Registered Public Accounting Firm

To the Stockholders and 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, 2017 and 2016, the related statements of operations, convertible preferred stock and stockholders' deficit, and cash flows for each of the years in the two-year period ended December 31, 2017, 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, 2017 and 2016, and the results of its operations and its cash flows for each of the years in the two-year period ended December 31, 2017, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on 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. 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.

Richmond, Virginia
March 30, 2018
Except as to Note 8, which is as of
June 4, 2018

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

	December 31,		Pro Forma Liabilities and Stockholders' Equity December 31, 2017 (unaudited)
	2016	2017	
ASSETS			
Current Assets:			
Cash	$ 527	$ 8,663	$ 8,663
Prepaid expenses and other assets	17	420	420
Total current assets	544	9,083	9,083
Total assets	$ 544	$ 9,083	$ 9,083
LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT			
Current Liabilities:			
Accounts payable	$ 67	$ 153	$ 153
Accrued expenses	316	449	449
Accounts payable and accrued expenses—related party	36	14	14
Total current liabilities	419	616	616
Total liabilities	419	616	616
Commitments and Contingencies			
Convertible preferred stock—Series A—21,302,972 shares authorized, issued and outstanding as of December 31, 2016 and 2017, net of stock subscription receivable of $8,000 and $0 as of December 31, 2016 and 2017, respectively; liquidation preference of $11,065 as of December 31, 2017	2,789	10,508	—
Convertible preferred stock—Series B—0 shares authorized, issued and outstanding as of December 31, 2016 and 1,937,984 shares authorized, issued and outstanding as of December 31, 2017; liquidation preference of $5,000 as of December 31, 2017	—	5,000	—
Total convertible preferred stock	2,789	15,508	—
Stockholders' deficit:			
Common stock, $0.0001 par value; 29,100,000 and 33,236,900 shares authorized; 3,804,643 shares issued and 3,699,499 shares outstanding as of December 31, 2016 and 2017	0	0	2
Treasury stock, at cost, 105,144 shares as of December 31, 2016 and 2017	—	—	—
Additional paid-in capital	12	5,394	20,900
Accumulated deficit	(2,676)	(12,435)	(12,435)
Total stockholders' deficit	(2,664)	(7,041)	8,467
Total liabilities, convertible preferred stock and stockholders' deficit	$ 544	$ 9,083	$ 9,083

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

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

	For the Years Ended December 31,	
	2016	2017
Operating expenses:		
Research and development	$ 1,709	$ 3,730
General and administrative	204	727
Total operating expenses	1,913	4,457
Loss from operations	(1,913)	(4,457)
Other expense:		
Interest expense—related party	—	(2)
Total other expense	—	(2)
Net loss	(1,913)	(4,459)
Deemed dividend on Series A preferred stock	—	(5,300)
Net loss attributable to common stockholders	$ (1,913)	$ (9,759)
Loss per share:		
Basic and diluted:		
Net loss	$ (0.52)	$ (1.21)
Deemed dividend on Series A preferred stock	—	(1.43)
Net loss attributable to common stockholders	$ (0.52)	$ (2.64)
Basic and diluted weighted average number of common shares outstanding	3,685,084	3,699,158
Pro forma basic and diluted (unaudited):		
Net loss		$ (0.26)
Deemed dividend on Series A preferred stock		(0.31)
Net loss attributable to common stockholders		$ (0.57)
Pro forma basic and diluted weighted average number of common shares outstanding (unaudited)		17,258,642

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

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

	Series A Convertible Preferred Stock		Series B Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Treasury Stock at Cost	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount				
Balance as of December 31, 2015	21,302,972	2,306	$ —	—	3,699,499	$ 0	$ 3	$ (763)	$ —	$ (760)
Stock-based compensation	—	—	—	—	—	—	9	—	—	9
Series A convertible preferred stock receivable	—	500	—	—	—	—	—	—	—	—
Issuance costs for Series A preferred stock	—	(17)	—	—	—	—	—	—	—	—
Net loss	—	—	—	—	—	—	—	(1,913)	—	(1,913)
Balance as of December 31, 2016	21,302,972	2,789	—	—	3,699,499	0	12	(2,676)	—	(2,664)
Stock-based compensation	—	—	—	—	—	—	82	—	—	82
Series A convertible preferred stock receivable	—	8,000	—	—	—	—	—	—	—	—
Issuance costs for Series A preferred stock	—	(281)	—	—	—	—	—	—	—	—
Beneficial conversion feature for Series A preferred stock	—	(5,300)	—	—	—	—	5,300	—	—	5,300
Deemed dividend for Series A preferred stock	—	5,300	—	—	—	—	—	(5,300)	—	(5,300)
Series B convertible preferred stock	—	—	1,937,984	5,000	—	—	—	—	—	—
Net loss	—	—	—	—	—	—	—	(4,459)	—	(4,459)
Balance as of December 31, 2017	21,302,972	10,508	1,937,984	5,000	3,699,499	$ 0	$ 5,394	$ (12,435)	$ —	$ (7,041)

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

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

	For the Years Ended December 31,	
	2016	2017
Cash flows from operating activities		
Net loss	$ (1,913)	$ (4,459)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	9	82
Changes in operating assets and liabilities:		
Prepaid expenses and other assets	(17)	(403)
Accounts payable	38	86
Accrued expenses	239	133
Accounts payable and accrued expenses—related party	33	(22)
Net cash used in operating activities	(1,611)	(4,583)
Cash flows from financing activities		
Proceeds received from Series A stock subscription receivable	500	8,000
Stock issuance costs related to Series A preferred stock	(17)	(281)
Proceeds received from issuance of Series B preferred stock	—	5,000
Net cash provided by financing activities	483	12,719
Net increase (decrease) in cash and cash equivalents	(1,128)	8,136
Cash and cash equivalents at the beginning of the period	1,655	527
Cash and cash equivalents at the end of the period	$ 527	$ 8,663
Supplemental disclosure of cash flow information:		
Cash paid for interest	$ —	$ 2

The accompanying notes are an integral part of these 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 clinical-stage medical dermatology company focused on identifying, developing and commercializing innovative pharmaceutical products for the treatment of skin diseases with significant unmet needs, with an initial focus on addressing molluscum contagiosum. The Company is controlled by PBM VP Holdings, LLC ("PBM VP Holdings"), an affiliate of PBM Capital Group, LLC.

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, 2017, the Company had an accumulated deficit of approximately $12.4 million.

On December 2, 2015, the Company entered into a Series A Preferred Stock Purchase Agreement (the "Agreement") with several investors and issued 21,302,972 shares of Series A convertible preferred stock (the "Series A Preferred Stock") for proceeds of $10.4 million. Per the Agreement, PBM VP Holdings was issued 19,252,983 shares of the Series A Preferred Stock, at an issuance price of $0.5194 per share, for cash consideration of $1.5 million upon closing and agreed to pay an additional $8.5 million as the Company requires additional funding pursuant to a budget approved by the Board of Directors. The Company received $0.5 million during the year ended December 31, 2016 and $8.0 million during the year ended December 31, 2017, respectively.

On December 15, 2017, the Company entered into a Series B Preferred Stock Purchase Agreement with one investor. The Company issued 1,937,984 shares of Series B convertible preferred stock (the "Series B Preferred Stock"), at an issuance price of $2.58 per share, for gross proceeds of $5.0 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 (the "Series C Preferred Stock"), at an issuance price of $4.559 per share, for gross proceeds of approximately $21.0 million.

The Company expects to use the proceeds from the above transactions primarily for general corporate purposes, which may include financing the Company's growth, developing new or existing product candidates, and funding capital expenditures, acquisitions and investments. Management believes the Company currently has sufficient funds to meet its operating requirements for at least the next twelve months from the issuance of these financial statements.

Note 2—Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

The Company's financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP") as determined by Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC").

Unaudited Pro Forma Information

The unaudited pro forma balance sheet data as of December 31, 2017 gives effect to the automatic conversion of all outstanding shares of the Company's Series A and B Preferred Stock on a 1.714-for-one basis into an aggregate of 13,599,452 shares of common stock, which will occur immediately prior to the Company's planned initial public offering. The unaudited pro forma basic and diluted net loss per share for year ended December 31, 2017 gives effect to such automatic conversion as if each had occurred as of the beginning of the period.

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 and the valuation allowance of deferred tax assets resulting from net operating losses. 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.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with original maturities of 90 days or less at acquisition to be cash equivalents. As of December 31, 2016 and 2017, the Company does not have any cash equivalents.

Concentrations of Credit Risk and Off-Balance Sheet Risk

Cash and cash equivalents are financial instruments that are potentially subject to concentrations of credit risk. The Company's cash and cash equivalents are deposited 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 cash and cash equivalents are held. The Company has no financial instruments with off-balance sheet risk of loss.

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.

Derivatives

The Company does not use derivative instruments to hedge exposures to cash flow, market, or foreign currency risks. The Company evaluates all of its financial instruments, including equity-linked financial instruments, to determine if such instruments are derivatives or contain features that qualify as embedded derivatives.

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.

The carrying amount of the Company's financial instruments, including cash and cash equivalents, approximate their fair values.

Stock-Based Compensation

The Company expenses stock-based compensation to employees and board members over the requisite service period based on the estimated grant-date fair value of the awards. The Company accounts for forfeitures as they occur. Stock-based awards with graded-vesting schedules are recognized on a straight-line basis over the requisite service period for each separately vesting portion of the award. The Company estimates the fair value of stock option grants using the Black-Scholes option pricing model, and the assumptions used in calculating the fair value of stock-based awards represent management's best estimates and involve inherent uncertainties and the application of management's judgment. All stock-based compensation costs are recorded in general and administrative or research and development costs in the statements of operations based upon the underlying individual's role at the Company.

Stock-based compensation for non-employee stock options is recorded over the vesting period and remeasured at fair value until they vest.

Income Taxes

Income taxes are recorded in accordance with ASC 740, *Income Taxes* ("ASC 740"), 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 basis 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. The Company recognizes any interest and penalties accrued related to unrecognized tax benefits as income tax expense.

Loss Per Share

Basic 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 loss per share excludes the potential impact of Series A and Series B Preferred Stock, common stock options and unvested shares of restricted stock because their effect would be anti-dilutive due to our 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 total potential shares outstanding, including those that are anti-dilutive:

	December 31,	
	2016	2017
Shares issuable upon conversion of Series A Preferred Stock	12,428,773	12,428,773
Shares issuable upon conversion of Series B Preferred Stock	—	1,130,679
Shares issuable upon exercise of stock options	72,927	90,429
Non-vested shares under restricted stock grants	2,162	—

Recently Adopted Accounting Pronouncements

In August 2014, the FASB issued Accounting Standards Update ("ASU") No. 2014-15, *Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern* ("ASU No. 2014-15") that requires management to evaluate whether there are conditions and events that raise substantial doubt about the Company's ability to continue as a going concern within one year after the financial statements are issued on both an interim and annual basis. Management is required to provide certain footnote disclosures if it concludes that substantial doubt exists or when its plans alleviate substantial doubt about the Company's ability to continue as a going concern. The Company adopted ASU No. 2014-15 on January 1, 2017 and its adoption did not have a material impact on the Company's financial statements and related disclosures.

In April 2016, the FASB issued ASU No. 2016-09, *Share-Based Payment: Simplifying the Accounting for Share-Based Payments*. The standard addresses several aspects of the accounting for employee share-based payment transactions, including the accounting for income taxes, forfeitures and statutory tax withholding requirements, as well as classification in the statement of cash flows. The Company adopted ASU 2016-09 during the first quarter of 2017 and elected to account for forfeitures as they occur. Other provisions of ASU 2016-09 had no impact on the Company's financial statements and related disclosures.

Recent Accounting Pronouncements

In May 2017, the FASB issued ASU 2017-09, *Compensation—Stock Compensation (Topic 718): Scope of Modification Accounting*, which clarifies when to account for a change to the terms or conditions of a share-based payment award as a modification. Under the new guidance, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. The new standard will be effective on January 1, 2018; however, early adoption is permitted. The Company will adopt this guidance effective January 1, 2018 and the adoption of the guidance is not anticipated to have a material impact on the Company's financial statements and related disclosures.

Note 3—Related Party Transactions

On December 2, 2015, the Company entered into a Services Agreement (a "SA") with PBM Capital Group, LLC. Pursuant to the terms of the SA, which had an initial term of twelve months (and is automatically renewable for successive monthly periods), PBM Capital Group, LLC renders advisory and consulting services to the Company. Services provided under the SA may include certain business development, operations, technical, contract, accounting and back office support services. In consideration for these services, the Company is obligated to pay PBM Capital Group, LLC a monthly management fee of $2,500 (See Note 8).

For the years ended December 31, 2016 and 2017, the Company incurred expenses under the SA of $30,000 and $30,000, respectively, which were included in general and administrative expenses.

As of December 31, 2016 and December 31, 2017, the Company owed PBM Capital Group, LLC and its affiliates approximately $36,000 and $14,000, respectively.

The Company has transactions and short-term borrowings with PBM Capital Group, LLC and its affiliates. These transactions and balances can be non-interest bearing or bear nominal interest rates, and are due on demand. At December 31, 2016 and 2017, the amounts the Company owed these related parties were subject to a 3% per annum interest rate, which is included in accounts payable and accrued expenses-related party. In 2016 and 2017, interest expense related to amounts due to a related party was $171 and $2,087, respectively.

Note 4—Commitments and Contingencies

Office Lease

The Company is not a party to any leases for office space or equipment as of December 31, 2016 and 2017.

Litigation

As of December 31, 2016 and 2017, there was no litigation against the Company.

Note 5—Stockholders' Equity

Common Stock

The Company has authorized 29,100,000 and 33,236,900 shares of common stock, $0.0001 par value per share, as of December 31, 2016 and 2017, respectively. Each share of common stock is entitled to one voting right. Common stock owners are entitled to dividends when funds are legally available and declared by the Board of Directors.

Restricted Stock

Pursuant to an Amended and Restated Stock Purchase Agreement (the "Amended and Restated Agreement") between the Company and its founder, 848,859 shares held by the founder are subject to repurchase at $0.0001 per share. These shares will be released from the repurchase option, if the founder continues to provide services to the Company, and on the earliest to occur of (i) a change in control, (ii) regulatory approval of the Company's new drug application for cantharidin, (iii) commercial sale of products and (iv) a covered termination, as defined in the Amended and Restated Agreement.

Series A Preferred Stock

On December 2, 2015, the Company issued an aggregate of 21,302,972 shares of Series A Preferred Stock to fourteen investors for cash consideration of approximately $1.9 million, conversion of previously outstanding notes payable and accrued interest of approximately $0.5 million and a stock subscription receivable of $8.5 million. The Company incurred aggregate issuance costs of approximately $0.4 million, related to the issuance of the Series A Preferred Stock and subsequent settlement of the stock subscription receivable. PBM VP Holdings paid the Company $0.5 million during the year ended December 31, 2016 and $8.0 million during the year ended December 31, 2017.

The shares of Series A Preferred Stock are convertible, at the option of the holder, into shares of the Company's common stock based on a conversion calculation determined by dividing the original issue price of $0.5194 by the applicable conversion price. The conversion price for the Series A Preferred Stock is $0.8903. In the event of the Company issuing additional shares of common stock for no consideration or for a consideration per share less than the applicable conversion price, the conversion price shall be reduced, as defined in the certificate of incorporation. Each share of Series A Preferred Stock would be automatically converted into shares of common stock upon an initial public offering where the per share price is at least 200% of the Series B original issuance price and the resulting aggregate gross proceeds to the Company are at least $60.0 million.

The Series A Preferred Stock holders are entitled to receive dividends along with holders of the common stock on an as-if converted basis, if and when declared by the Company's Board of Directors. The holders of Series A Preferred Stock shall vote together with the holders of common stock on all matters on an as if converted basis, subject to certain conversion and ownership limitations, and shall not vote as a separate class. At any time when shares of Series A Preferred Stock (subject to adjustments) are outstanding, the Series A holders hold certain protective rights.

As long as at least 20% of the originally issued shares of Series A Preferred Stock remain outstanding (subject to adjustments from time to time) the holders of outstanding shares of Series A Preferred Stock, voting together as a single class, shall be entitled to elect three of the five individuals to the Company's Board of Directors.

Upon the liquidation, dissolution or winding-up of the Company, whether voluntary or involuntary, and upon certain deemed liquidation events, including a change of control, the holders of shares of Series A Preferred Stock shall be entitled to be paid out of the assets of the Company available for distribution to its stockholders, after payment of the Series B liquidation preference amount to the holders of Series B Preferred Stock but before common stockholders, an amount equal to $0.5194 per share, subject to adjustment, plus any dividends declared but unpaid. In the event that the Company's assets are insufficient to pay the Series A Preferred Stock holders the full liquidation preference amount, holders shall receive a ratable distribution in proportion to the full amount owed.

The Company classifies its Series A Preferred Stock outside of stockholders' deficit because redemption of the Series A Preferred Stock, upon a deemed liquidation event, is not solely within the Company's control. The Company does not accrete the carrying value of the preferred stock to the redemption values since a liquidation event is not considered probable as of December 31, 2016 and 2017.

Of the $8.0 million of the subscription receivable received by the Company during the year ended December 31, 2017, $5.3 million was received in the fourth quarter of 2017. As PBM VP Holdings was not obligated to fund the subscription receivable, the commitment date for Series A Preferred Stock issued is the date of each cash collection. Based on the valuation of the Company, as of the commitment date, a beneficial conversion feature was determined to exist. The resulting discount, which was limited to the cash proceeds received for the Series A Preferred Stock, totaled $5.3 million and was immediately recognized as a deemed dividend as the Series A Preferred Stock is immediately convertible. The deemed dividend is presented in the Statement of Operations, increasing net loss to arrive at net loss attributable to common stockholders.

Series B Preferred Stock

On December 15, 2017, the Company issued and sold an aggregate of 1,937,984 shares of Series B Preferred Stock, at an issuance price of $2.58 per share, for gross proceeds of $5.0 million. The Company did not incur any issuance costs for the Series B Preferred Stock.

The shares of Series B Preferred Stock are convertible, at the option of the holder, into shares of the Company's common stock based on a conversion calculation determined by dividing the original issue price of $2.58 by the applicable conversion price. The conversion price for the Series B Preferred Stock is $4.4221. In the event of the Company issuing additional shares of common stock for no consideration or for a consideration per share less than the applicable conversion price, the conversion price shall be reduced, as defined. Each share of Series B Preferred Stock would be automatically converted into shares of common stock upon an initial public offering where the per share price is at least 200% of the Series B original issuance price and the resulting aggregate gross proceeds to the Company are at least $60.0 million.

The Series B Preferred Stock holders are entitled to receive annual non-compounding cash dividends at a rate of 8% if and when declared by the Company's Board of Directors. The dividend is non-cumulative. The

holders of Series B Preferred Stock shall vote together with the holders of common stock on all matters on an as if converted basis, subject to certain conversion and ownership limitations, and shall not vote as a separate class. At any time when at least 968,992 shares of Series B Preferred Stock (subject to adjustments) are outstanding, the Series B holders hold certain protective rights.

Upon the liquidation, dissolution or winding-up of the Company, whether voluntary or involuntary, and upon certain deemed liquidation events, including a change in control, the holders of shares of Series B Preferred Stock shall be entitled to be paid out of the assets of the Company available for distribution to its stockholders, before any payments to the holders of Series A Preferred Stock and common stockholders an amount equal to $2.58 per share, subject to adjustment plus any dividends declared but unpaid. In the event that the Company's assets are insufficient to pay the Series B Preferred Stock holders the full liquidation preference amount, all holders shall receive a ratable distribution in proportion to the full amount owed.

The Company classifies its Series B Preferred Stock outside of stockholders' deficit because redemption of the Series B Preferred Stock, upon a deemed liquidation event, is not solely within the Company's control.

Additional Liquidation Rights for Series A and Series B Preferred Stock

Upon the liquidation, dissolution or winding-up of the Company, whether voluntary or involuntary, and upon certain deemed liquidation events, including a change in control (collectively, the "Event"), after the payment of all preferential amounts required to be paid to the holders of Preferred Stock, the remaining assets of the Company available for distribution shall be distributed among the holders of shares of Series B and Series A Preferred Stock and common stockholders, on a pro rata basis, provided that A) if the aggregate amount which the holders of shares of Series B Preferred Stock are entitled to receive exceeds seven times the Series B original issue price, as adjusted, ("Series B Participation Amount") the holders of shares of Series B Preferred Stock shall be entitled to receive the greater of (i) the Series B Participation Amount and (ii) the amount such holder would have received if all the shares of Series B Preferred Stock had been converted into Common Stock immediately prior to such Event, and B) if the aggregate amount which the holders of Series A Preferred Stock are entitled to receive shall exceed seven times the Series A original issue price, as adjusted, ("Series A Participation Amount") each holder of Series A Preferred Stock shall be entitled to receive the greater of (i) the Series A Participation Amount and (ii) the amount such holder would have received if all the shares of Series A Preferred Stock had been converted into Common Stock immediately prior to such Event.

Note 6—Stock-Based Compensation

The Company's 2013 Equity Incentive Plan (the "Plan") permits the granting of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock and restricted stock units. The maximum aggregate shares of common stock that may be subject to awards and issued under the Plan was originally 583,431. On December 2, 2015, the Plan was amended to increase the maximum aggregate shares of common stock that may be subject to awards and issued under the Plan to 1,090,760. On February 20, 2018, the maximum aggregate shares of common stock that may be subject to awards and issued under the Plan was increased to 1,540,001. At December 31, 2017, 332,327 shares have been awarded and 758,433 shares remain available for issuance under the Plan.

Stock Options

The Company's 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, 2017 have a maximum contractual term of 10 years. The stock options are subject to time vesting requirements through 2021, are nontransferable, and have term expiration dates set to expire in January 2027.

In April 2016, the Company granted 72,927 common stock options to non-employees, subject to the terms and conditions of the Plan above. The stock options are nontransferable and have term expiration dates set to expire in April 2026. 58,343 of the common stock options are subject to time vesting requirements through 2020. The remaining 14,584 common stock options were fully vested at grant.

In January 2017, the Company granted 17,502 common stock options to an employee, subject to the terms and conditions of the Plan above. The stock options are subject to time vesting requirements through 2021, are nontransferable, and have term expiration dates set to expire in January 2027. At December 31, 2017, none of these options had vested.

On December 22, 2017, the Company's Board of Directors granted a stock option award for 724,315 shares of common stock to the Company's Chief Executive Officer ("CEO Stock Option Grant") subject to the Board of Directors approval of a valuation report as to the value of the Company common stock. On February 12, 2018, the Board determined that the exercise price of the CEO Stock Option Grant would be equal to the greater of 1) $3.75 per share or 2) the Board of Directors approval of a valuation report as to the value of the Company common stock as of February 12, 2018. Since the Board of Directors did not approve the valuation report until March 28, 2018, the Company believes a mutual understanding did not occur and did not record stock-based compensation expense for the year ended December 31, 2017.

Option Awards

The fair value of each employee and non-employee stock option grant is estimated on the date of grant using the Black-Scholes option-pricing model. The Company is 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. Due to the lack of historical exercise history, the expected term of the Company's stock options for employees has been determined utilizing the "simplified" method for awards. The expected term of stock options granted to non-employees is equal to the contractual term of the option award. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award. 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 the Company's common stock was estimated to be $0.26 and $3.75 at December 31, 2016 and 2017, respectively. In order to determine the fair value, the Company considered, among other things, contemporaneous valuations of the Company's common stock, the Company's business, financial condition and results of operations, including related industry trends affecting its operations; the likelihood of achieving a liquidity event, such as an initial public offering, or IPO, or sale, given prevailing market conditions; the lack of marketability of the Company's common stock; the market performance of comparable publicly traded companies; and U.S. and global economic and capital market conditions.

The Black-Scholes option-pricing model for the employee stock option granted in January 2017 utilized the December 31, 2016 valuation of our common stock. The Black-Scholes option-pricing model for non-employee stock options utilized the December 31, 2016 valuation of our common stock until the fourth quarter of 2017. During the fourth quarter of 2017, the Company raised $5.0 million from selling the Series B Preferred Stock, received positive clinical trial results upon completing its Phase 2 clinical trials for its primary compound in development and hired a new Chief Executive Officer which led to the increase in value of the Company's common stock at December 31, 2017.

The grant date fair value of employee stock option awards is determined using the Black-Scholes option-pricing model. The following assumptions were used during the year ended December 31, 2017.

	For the Year Ended December 31, 2017
Exercise price	$0.89
Risk-free rate of interest	1.92% - 2.23%
Expected term (years)	6.25
Expected stock price volatility	79.02% - 79.12%
Dividend yield	—

Non-employee options are remeasured to fair value each period through operations using a Black-Scholes option-pricing model until the options vest. There were no stock options granted to non-employees during the year ended December 31, 2017. Key assumptions used to estimate the fair value of the non-employee stock options measured during the year ended December 31, 2016 included risk-free interest rates of 1.49% to 2.45%, an expected volatility of 74.94% to 79.17%, no expected dividend yield and an expected term equal to the remaining contractual option term. Key assumptions used to estimate the fair value of the non-employee stock options measured during the year ended December 31, 2017 included risk-free interest rates of 1.79% to 2.48%, an expected volatility of 77.59% to 79.12%, no expected dividend yield and an expected term equal to the remaining contractual option term.

The following table summarizes the Company's stock option activity under the Plan for the years ended December 31, 2016 and 2017:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value
Outstanding as of December 31, 2016	72,927	$ 0.89	9.3	
Employee options granted	17,502	0.89	9.0	
Outstanding as of December 31, 2017	90,429	0.89	8.4	$ 258,850
Options vested and exercisable as of December 31, 2017	41,324	0.89	8.3	118,286

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 grant date fair value per share for the employee stock option grant during the year ended December 31, 2017 was $0.12. At December 31, 2017, the total unrecognized compensation related to unvested employee and non-employee stock option awards granted was $37,984, which the Company expects to recognize over a weighted-average period of approximately 1.1 years.

Restricted Stock

The Company's restricted stock awards generally vest on a ratable basis over a 24-month period from 12 months after the grant date.

A summary of the restricted stock award activity for the years ended December 31, 2016 and 2017 were as follows:

	Number of Units	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2015	42,491	$ 0.26
Vested	(40,329)	0.26
Nonvested at December 31, 2016	2,162	0.26
Vested	(2,162)	0.26
Nonvested at December 31, 2017	—	—

Stock-based compensation expense has been reported in the Company's statements of operations for the years ended December 31, 2016 and 2017 as follows:

	For the Years Ended December 31,	
	2016	2017
	(in thousands)	
General and administrative	$ 2	$ —
Research and development	7	82
Total stock-based compensation	$ 9	$ 82

Note 7—Income Taxes

A reconciliation of the statutory U.S. federal rate to the Company's effective tax rate consist of the following:

	For the Years Ended December 31,	
	2016	2017
	(in thousands)	
Tax computed at statutory federal income tax rate	$ (669)	$ (1,560)
State taxes, net of federal benefit	(109)	(255)
Federal tax change	—	898
Change in valuation allowance	778	917
Income tax provision (benefit)	$ —	$ —

The tax effects of the temporary differences and carry forwards that give rise to deferred tax assets consist of the following:

	December 31,	
	2016	2017
	(in thousands)	
Deferred tax assets:		
Net operating loss carryovers	$ 1,052	$ 1,946
Other	4	27
Total deferred tax assets	1,056	1,973
Less valuation allowance	(1,056)	(1,973)
Deferred tax asset, net of valuation allowance	$ —	$ —

On December 22, 2017, "H.R.1", formerly known as the "Tax Cuts and Jobs Act", was signed into law. Among other items, H.R.1 reduces the federal corporate tax rate to 21% from the existing maximum rate of 35%, effective January 1, 2018. As a result, the Company has concluded that this will cause the Company's net deferred tax asset to be revalued at the new lower tax rate. The Company has reduced the value of the deferred tax asset before valuation allowance by $0.9 million.

The Company has determined, based upon 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. Based on this analysis, the Company determined that a valuation allowance of $1.1 million was required as of December 31, 2016, resulting in $0 net deferred tax assets. The Company recorded a valuation allowance of $2.0 million and $0 net deferred tax assets as of December 31, 2017.

As of December 31, 2017, the Company had federal and state net operating loss carryforwards of approximately $7.0 million. The federal and state net operating loss carryforwards generated in the 2016 and 2017 tax years will begin to expire, if not utilized, by 2036. 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.

At December 31, 2017, 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 $0.1 million at December 31, 2016 and $0.1 million at December 31, 2017. The Company will recognize interest and penalties related to uncertain tax positions in income tax expense. As of December 31, 2017, 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 2014 and subsequent federal and state tax returns for the Company remain open for examination.

Note 8—Subsequent Events

On February 12, 2018, the Board approved stock option awards to employees for 341,304 options to acquire common stock. The exercise price of these awards was established at the fair value of the Company's common stock as of February 12, 2018 for 154,608 options, February 26, 2018 for 113,768 options and March 5, 2018 for 72,928 options (based on each respective employee's date of employment). The company performed valuations of its common stock in order to determine the fair value as of the award dates. On March 28, 2018, the Board approved the award date valuation, which set the exercise price for the 154,608 options awarded on February 12, 2018 at $6.51 per share, and established an accounting grant date. On April 24, 2018, the Board approved the award date valuations, which set the exercise price for the 113,768 options awarded on February 26, 2018 and the 72,928 options awarded on March 5, 2018 at $6.86 per share, and established an accounting grant date.

On March 20, 2018, the Board approved stock option awards to an employee for 87,514 options to acquire common stock, with the exercise price of these awards to be established at the fair value of the Company's common stock as of April 4, 2018 (such employee's date of employment). The company performed a valuation of its common stock in order to determine the fair value as of the award date. On April 24, 2018, the Board approved the award date valuation, which set the exercise price for the 87,514 options awarded on April 4, 2018 at $8.72 per share, and established an accounting grant date.

On March 28, 2018, the Board approved the valuation of the Company's common stock of $6.51 per share as of February 12, 2018, which set the exercise price for 724,315 options to the Company's Chief Executive Officer that were approved by the Board on December 22, 2017 and established an accounting grant date.

On February 20, 2018 and March 7, 2018, the Company issued and sold an aggregate of 4,606,267 Series C Preferred Shares, at an issuance price of $4.559 per share, for gross proceeds of approximately $21.0 million. Each share of Preferred Stock will be automatically converted into 0.583 shares of common stock upon an initial public offering where the per share price is at least $8.84 resulting in aggregate gross proceeds to the Company of at least $60.0 million or upon a vote or written consent of the outstanding shares of each class of Preferred Stock.

On March 22, 2018, the Company executed a purchase order, denominated in Chinese yuan, with a supplier, pursuant to which the Company agreed to purchase approximately $2.3 million of crude cantharidin material.

On March 29, 2018, the Company amended the SA with PBM Capital Group, LLC, effective as of April 1, 2018. Pursuant to the terms of the SA, which has an initial term of twelve months (and is automatically renewable for successive monthly periods), PBM Capital Group, LLC will render advisory and consulting services to the Company. Services provided under the SA may include certain business development, operations, technical, contract, accounting and back office support services. In consideration for these services, the Company is obligated to pay PBM Capital Group, LLC a monthly management fee of $50,000. The SA as amended, provides for the termination by the Company 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 April 9, 2018, the Company entered into an agreement to sublease 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.

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 have been adjusted to reflect the reverse stock split.

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

	December 31, 2017	March 31, 2018 (Unaudited)	Pro Forma Liabilities and Stockholders' Equity March 31, 2018 (Unaudited)
ASSETS			
Current assets:			
Cash and cash equivalents	$ 8,663	$ 27,485	$ 27,485
Prepaid expenses and other assets	420	1,420	1,420
Total current assets	9,083	28,905	28,905
Property, plant and equipment, net	—	19	19
Deferred offering costs	—	472	472
Total assets	$ 9,083	$ 29,396	$ 29,396
LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT			
Current liabilities:			
Accounts payable	$ 153	$ 611	$ 611
Accrued expenses	449	1,030	1,030
Accounts payable and accrued expenses—related party	14	7	7
Total current liabilities	616	1,648	1,648
Total liabilities	616	1,648	1,648
Commitments and Contingencies			
Convertible preferred stock—Series A—21,302,972 shares authorized, issued and outstanding as of December 31, 2017 and March 31, 2018; liquidation preference of $11,065 as of December 31, 2017 and March 31, 2018	10,508	10,508	—
Convertible preferred stock—Series B—1,937,984 shares authorized, issued and outstanding as of December 31, 2017 and March 31, 2018; liquidation preference of $5,000 as of December 31, 2017 and March 31, 2018	5,000	5,000	—
Convertible preferred stock—Series C—0 shares authorized, issued and outstanding as of December 31, 2017 and 4,606,267 shares authorized, issued and outstanding as of March 31, 2018; liquidation preference of $21,000 as of March 31, 2018	—	20,993	—
Total convertible preferred stock	15,508	36,501	—
Stockholders' (deficit) equity:			
Common stock, $0.0001 par value; 33,236,900 authorized; 3,804,643 shares issued and 3,699,499 shares outstanding as of December 31, 2017 and March 31, 2018	0	0	2
Treasury stock, at cost, 105,144 shares as of December 31, 2017 and March 31, 2018	—	—	—
Additional paid-in capital	5,394	5,555	42,055
Accumulated deficit	(12,435)	(14,309)	(14,309)
Total stockholders' (deficit) equity	(7,041)	(8,753)	27,748
Total liabilities, convertible preferred stock and stockholders' (deficit) equity	$ 9,083	$ 29,396	$ 29,396

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

VERRICA PHARMACEUTICALS INC.
CONDENSED STATEMENTS OF OPERATIONS
(in thousands, except share and per share amounts)
(Unaudited)

	For the three months ended March 31,	
	2017	**2018**
Operating expenses:		
Research and development	$ 515	$ 929
General and administrative	55	986
Total operating expenses	570	1,915
Loss from operations	(570)	(1,915)
Other income		
Interest income	—	41
Total other income	—	41
Net loss	$ (570)	$ (1,874)
Net loss per share, basic and diluted	$ (0.15)	$ (0.51)
Weighted average common shares outstanding, basic and diluted	3,698,190	3,699,499
Pro forma net loss per share, basic and diluted		$ (0.09)
Pro forma weighted average common shares outstanding, basic and diluted		19,946,371

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

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

	Series A Convertible Preferred Stock		Series B Convertible Preferred Stock		Series C Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Treasury Stock at Cost	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount				
Balance as of December 31, 2017	21,302,972	$10,508	1,937,984	$5,000	—	$ —	3,699,499	$ 0	$ 5,394	$ (12,435)	$ —	$ (7,041)
Stock-based compensation	—	—	—	—	—	—	—	—	162	—	—	162
Series C convertible preferred stock	—	—	—	—	4,606,267	21,000	—	—	—	—	—	—
Issuance costs for Series C preferred	—	—	—	—	—	(7)	—	—	—	—	—	—
Net loss	—	—	—	—	—	—	—	—	—	(1,874)	—	(1,874)
Balance as of March 31, 2018	21,302,972	$10,508	1,937,984	$5,000	4,606,267	$20,993	3,699,499	$ 0	$ 5,555	$ (14,309)	$ —	$ (8,753)

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

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

	For the three months ended March 31,	
	2017	2018
Cash flows from operating activities		
Net loss	$ (570)	$ (1,874)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	1	162
Changes in operating assets and liabilities:		
Prepaid expenses and other assets	(31)	(1,000)
Accounts payable	52	457
Accrued expenses	30	108
Accounts payable and accrued expenses—related party	9	(7)
Net cash used in operating activities	(509)	(2,154)
Cash flows from investing activities		
Purchase of property, plant and equipment	—	(17)
Net cash used in investing activities	—	(17)
Cash flows from financing activities		
Proceeds received from Series A preferred stock subscription receivable	500	—
Stock issuance costs related to Series A preferred stock	(18)	—
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	482	20,993
Net (decrease) increase in cash and cash equivalents	(27)	18,822
Cash and cash equivalents at the beginning of the period	527	8,663
Cash and cash equivalents at the end of the period	$ 500	$ 27,485
Noncash investing and financing activities		
Fixed asset purchases accrued at period end	$ —	$ 2
Deferred offering costs included in accounts payable and accrued expenses	$ —	$ 472
Supplemental disclosure of cash flow information:		
Cash paid for interest	$ —	$ —
Cash paid for income taxes	$ —	$ —

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

VERRICA PHARMACEUTICALS INC.
Notes to Condensed 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 clinical-stage medical dermatology company focused on identifying, developing and commercializing innovative pharmaceutical products for the treatment of skin diseases with significant unmet needs, with an initial focus on addressing molluscum contagiosum. The Company is controlled by PBM VP Holdings, LLC ("PBM VP Holdings"), an affiliate of PBM Capital Group, LLC.

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 March 31, 2018, the Company had an accumulated deficit of approximately $14.3 million.

On December 15, 2017, the Company entered into a Series B Preferred Stock Purchase Agreement with one investor. The Company issued 1,937,984 shares of Series B convertible preferred stock (the "Series B Preferred Stock"), at an issuance price of $2.58 per share, for gross proceeds of $5.0 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 (the "Series C Preferred Stock"), at an issuance price of $4.559 per share, for gross proceeds of approximately $21.0 million.

The Company expects to use the proceeds from the above transactions primarily for general corporate purposes, which may include financing the Company's growth, developing new or existing product candidates, and funding capital expenditures, acquisitions and investments. Management believes the Company currently has sufficient funds to meet its operating requirements for at least the next twelve months from the issuance of these financial statements.

Note 2—Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

The accompanying unaudited interim condensed financial statements have been prepared in accordance with generally accepted accounting principles in the United States of America ("GAAP") as determined by Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") for interim financial information. Accordingly, they do not include all of the information and footnotes required by GAAP for complete financial statements. In the opinion of management, the unaudited interim condensed financial statements reflect all adjustments, which include only normal recurring adjustments necessary for the fair statement of the balances and results for the periods presented. They may not include all of the information and footnotes required by GAAP for complete financial statements. Therefore, these financial statements should be read in conjunction with the Company's audited financial statements and notes thereto for the year ended December 31, 2017. The results of operations for any interim periods are not necessarily indicative of the results that may be expected for the entire fiscal year or any other interim period.

Unaudited Pro Forma Information

The unaudited pro forma balance sheet data as of March 31, 2018 gives effect to the automatic conversion of all outstanding shares of the Company's Series A, B and C Preferred Stock on a 1.714-for-one basis into an aggregate of 16,246,872 shares of common stock, which will occur immediately prior to the Company's planned initial public offering. The unaudited pro forma basic and diluted net loss per share for three months ended March 31, 2018 gives effect to such automatic conversion as if each had occurred as of the beginning of the earliest period presented.

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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 and the valuation allowance of deferred tax assets resulting from net operating losses. 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.

Cash and Cash Equivalents

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.

Concentrations of Credit Risk and Off-Balance Sheet Risk

Cash and cash equivalents are financial instruments that are potentially subject to concentrations of credit risk. The Company's cash and cash equivalents are deposited 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 cash and cash equivalents are held. The Company has no financial instruments with off-balance sheet risk of loss.

Deferred Offering Costs

Deferred offering costs consist of legal, accounting, underwriting fees and other costs incurred through the balance sheet date that are directly related to the planned initial public offering and that will be charged to stockholders' equity upon the completion of the planned initial public offering. Should the planned initial public offering prove to be unsuccessful, these deferred costs, as well as additional expenses to be incurred, will be charged to operations.

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.

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Derivatives

The Company does not use derivative instruments to hedge exposures to cash flow, market, or foreign currency risks. The Company evaluates all of its financial instruments, including equity-linked financial instruments, to determine if such instruments are derivatives or contain features that qualify as embedded derivatives.

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.

The carrying amount of the Company's financial instruments, including cash and cash equivalents, approximate their fair values.

Stock-Based Compensation

The Company expenses stock-based compensation to employees and board members over the requisite service period based on the estimated grant-date fair value of the awards. The Company accounts for forfeitures as they occur. Stock-based awards with graded-vesting schedules are recognized on a straight-line basis over the requisite service period for each separately vesting portion of the award. The Company estimates the fair value of stock option grants using the Black-Scholes option pricing model, and the assumptions used in calculating the fair value of stock-based awards represent management's best estimates and involve inherent uncertainties and the application of management's judgment. All stock-based compensation costs are recorded in general and administrative or research and development costs in the statements of operations based upon the underlying individual's role at the Company.

Stock-based compensation for non-employee stock options is recorded over the vesting period and remeasured at fair value until they vest.

Income Taxes

Income taxes are recorded in accordance with ASC 740, *Income Taxes* ("ASC 740"), which provides for deferred taxes using an asset and liability approach. The Company recognizes deferred tax assets and liabilities

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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 basis 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. In its interim financial statements, the Company utilizes an expected annual effective tax rate in determining its income tax provisions for the interim periods. The expected annual effective tax rate differs from U.S. statutory rates primarily as a result of a valuation allowance related to the Company's net operating loss carryforward as a result of the historical losses of the Company.

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. The Company recognizes any interest and penalties accrued related to unrecognized tax benefits as income tax expense.

Loss Per Share

Basic 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 loss per share excludes the potential impact of Series A, Series B and Series C Preferred Stock, common stock options and unvested shares of restricted stock because their effect would be anti-dilutive due to our 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 total potential shares outstanding, including those that are anti-dilutive:

	March 31,	
	2017	2018
Shares issuable upon conversion of Series A Preferred Stock	12,428,773	12,428,773
Shares issuable upon conversion of Series B Preferred Stock	—	1,130,679
Shares issuable upon conversion of Series C Preferred Stock	—	2,687,420
Shares issuable upon exercise of stock options	90,429	969,352
Non-vested shares under restricted stock grants	866	—

Recently Adopted Accounting Pronouncements

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*. Under the new guidance, lessees will be required to recognize all leases (with the exception of short-term leases) on the balance sheet as a lease liability, which is a lessee's obligation to make lease payments arising from a lease, measured on a discounted basis and a right-of-use asset, which is an asset that represents the lessee's right to use, or control the use of, a specified asset for the lease term. The new standard is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. The Company is currently assessing the provisions of the guidance and has not determined the impact of adoption on its financial statements.

In May 2017, the FASB issued ASU 2017-09, *Compensation—Stock Compensation (Topic 718): Scope of Modification Accounting*, which clarifies when to account for a change to the terms or conditions of a share-based payment award as a modification. Under the new guidance, modification accounting is required only if the

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fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. The new standard will be effective on January 1, 2018; however, early adoption is permitted. The Company adopted this guidance effective January 1, 2018 and the adoption of the guidance had no impact on the Company's financial statements and related disclosures.

Note 3—Related Party Transactions

On December 2, 2015, the Company entered into a Services Agreement (a "SA") with PBM Capital Group, LLC. Pursuant to the terms of the SA, which had an initial term of twelve months (and is automatically renewable for successive monthly periods), PBM Capital Group, LLC renders advisory and consulting services to the Company. Services provided under the SA may include certain business development, operations, technical, contract, accounting and back office support services. In consideration for these services, the Company is obligated to pay PBM Capital Group, LLC a monthly management fee of $2,500.

On March 29, 2018, the Company amended the SA with PBM Capital Group, LLC, effective as of April 1, 2018. Pursuant to the terms of the SA, which has an initial term of twelve months (and is automatically renewable for successive monthly periods), PBM Capital Group, LLC will render advisory and consulting services to the Company. Services provided under the SA may include certain business development, operations, technical, contract, accounting and back office support services. In consideration for these services, the Company is obligated to pay PBM Capital Group, LLC a monthly management fee of $50,000. The SA, as amended, provides for the termination by the Company 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.

For the three months ended March 31, 2017 and 2018, the Company incurred expenses under the SA of $7,500 and $7,500, respectively, which were included in general and administrative expenses.

As of December 31, 2017 and March 31, 2018, the Company owed PBM Capital Group, LLC and its affiliates approximately $14,000 and $6,535, respectively.

The Company has transactions and short-term borrowings with PBM Capital Group, LLC and its affiliates. These transactions and balances can be non-interest bearing or bear nominal interest rates, and are due on demand. At December 31, 2017 and March 31, 2018, the amounts the Company owed these related parties were subject to a 3% per annum interest rate, which is included in accounts payable and accrued expenses-related party. In the three months ended March 31, 2017 and 2018, interest expense related to amounts due to a related party was $219 and $0, respectively.

Note 4—Commitments and Contingencies

Office Lease

The Company is not a party to any leases for office space or equipment as of December 31, 2017 and March 31, 2018 (See Note 7).

Litigation

As of December 31, 2017 and March 31, 2018, there was no litigation against the Company.

VERRICA PHARMACEUTICALS INC.
Notes to Condensed Financial Statements

Purchase Order

On March 22, 2018, the Company executed a purchase order, denominated in Chinese yuan, with a supplier, pursuant to which the Company agreed to purchase approximately $2.3 million of crude cantharidin material.

Note 5—Stockholders' Equity

Common Stock

The Company has authorized 33,236,900 shares of common stock, $0.0001 par value per share, as of December 31, 2017 and March 31, 2018. Each share of common stock is entitled to one voting right. Common stock owners are entitled to dividends when funds are legally available and declared by the Board of Directors.

Restricted Stock

Pursuant to an Amended and Restated Stock Purchase Agreement (the "Amended and Restated Agreement") between the Company and its founder, 848,859 shares held by the founder are subject to repurchase at $0.0001 per share. These shares will be released from the repurchase option, if the founder continues to provide services to the Company, and on the earliest to occur of (i) a change in control, (ii) regulatory approval of the Company's new drug application for cantharidin, (iii) commercial sale of products and (iv) a covered termination, as defined in the Amended and Restated Agreement.

Series A Preferred Stock

On December 2, 2015, the Company issued an aggregate of 21,302,972 shares of Series A Preferred Stock to fourteen investors for cash consideration of approximately $1.9 million, conversion of previously outstanding notes payable and accrued interest of approximately $0.5 million and a stock subscription receivable of $8.5 million. The Company incurred aggregate issuance costs of approximately $0.4 million, related to the issuance of the Series A Preferred Stock and subsequent settlement of the stock subscription receivable. PBM VP Holdings paid the Company $0.5 million during the year ended December 31, 2016, $8.0 million during the year ended December 31, 2017 to settle the stock subscription receivable.

The shares of Series A Preferred Stock are convertible, at the option of the holder, into shares of the Company's common stock based on a conversion calculation determined by dividing the original issue price of $0.5194 by the applicable conversion price. The conversion price for the Series A Preferred Stock is $0.8903. In the event of the Company issuing additional shares of common stock for no consideration or for a consideration per share less than the applicable conversion price, the conversion price shall be reduced, as defined in the certificate of incorporation. Each share of Series A Preferred Stock would be automatically converted into shares of common stock upon an initial public offering where the per share price is at least $8.84 and the resulting aggregate gross proceeds to the Company are at least $60.0 million or upon a vote or written consent of at least 55% of the then outstanding shares of each class of Preferred Stock.

The Series A Preferred Stock holders are entitled to receive dividends along with holders of the common stock on an as-if converted basis, if and when declared by the Company's Board of Directors. The holders of Series A Preferred Stock shall vote together with the holders of common stock on all matters on an as if converted basis, subject to certain conversion and ownership limitations, and shall not vote as a separate class. At any time when shares of Series A Preferred Stock (subject to adjustments) are outstanding, the Series A holders hold certain protective rights.

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As long as at least 20% of the originally issued shares of Series A Preferred Stock remain outstanding (subject to adjustments from time to time) the holders of outstanding shares of Series A Preferred Stock, voting together as a single class, shall be entitled to elect three of the five individuals to the Company's Board of Directors.

Upon the liquidation, dissolution or winding-up of the Company, whether voluntary or involuntary, and upon certain deemed liquidation events, including a change of control, the holders of shares of Series A Preferred Stock shall be entitled to be paid out of the assets of the Company available for distribution to its stockholders, after payment of the Series B and Series C liquidation preference amount to the holders of Series B and Series C Preferred Stock but before common stockholders, an amount equal to $0.5194 per share, subject to adjustment, plus any dividends declared but unpaid. In the event that the Company's assets are insufficient to pay the Series A Preferred Stock holders the full liquidation preference amount, holders shall receive a ratable distribution in proportion to the full amount owed.

The Company classifies its Series A Preferred Stock outside of stockholders' deficit because redemption of the Series A Preferred Stock, upon a deemed liquidation event, is not solely within the Company's control. The Company does not accrete the carrying value of the preferred stock to the redemption values since a liquidation event is not considered probable as of December 31, 2017 and March 31, 2018.

Series B Preferred Stock

On December 15, 2017, the Company issued and sold an aggregate of 1,937,984 shares of Series B Preferred Stock, at an issuance price of $2.58 per share, for gross proceeds of $5.0 million. The Company did not incur any issuance costs for the Series B Preferred Stock.

The shares of Series B Preferred Stock are convertible, at the option of the holder, into shares of the Company's common stock based on a conversion calculation determined by dividing the original issue price of $2.58 by the applicable conversion price. The conversion price for the Series B Preferred Stock is $4.4221. In the event of the Company issuing additional shares of common stock for no consideration or for a consideration per share less than the applicable conversion price, the conversion price shall be reduced, as defined. Each share of Series B Preferred Stock would be automatically converted into shares of common stock upon an initial public offering where the per share price is at least $8.84 and the resulting aggregate gross proceeds to the Company are at least $60.0 million or upon a vote or written consent of at least 55% of the then outstanding shares of each class of Preferred Stock.

The Series B Preferred Stock holders are entitled to receive annual non-compounding cash dividends at a rate of 8% if and when declared by the Company's Board of Directors. The dividend is non-cumulative. The holders of Series B Preferred Stock shall vote together with the holders of common stock on all matters on an as if converted basis, subject to certain conversion and ownership limitations, and shall not vote as a separate class. At any time when at least 968,992 shares of Series B Preferred Stock (subject to adjustments) are outstanding, the Series B holders hold certain protective rights.

Upon the liquidation, dissolution or winding-up of the Company, whether voluntary or involuntary, and upon certain deemed liquidation events, including a change in control, the holders of shares of Series B Preferred Stock shall be entitled to be paid out of the assets of the Company available for distribution to its stockholders, after any payment of the Series C liquidation preference amount to the holders of Series C Preferred Stock but before any payments to the holders of Series A Preferred Stock and common stockholders, an amount equal to $2.58 per share, subject to adjustment plus any dividends declared but unpaid. In the event that the Company's assets are insufficient to pay the Series B Preferred Stock holders the full liquidation preference amount, all holders shall receive a ratable distribution in proportion to the full amount owed.

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The Company classifies its Series B Preferred Stock outside of stockholders' deficit because redemption of the Series B Preferred Stock, upon a deemed liquidation event, is not solely within the Company's control.

Series C Preferred 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 approximately $21.0 million.

The shares of Series C Preferred Stock are convertible, at the option of the holder, into shares of the Company's common stock based on a conversion calculation determined by dividing the original issue price of $4.559 by the applicable conversion price. The conversion price for the Series C Preferred Stock is $7.814. In the event of the Company issuing additional shares of common stock for no consideration or for a consideration per share less than the applicable conversion price, the conversion price shall be reduced, as defined. Each share of Series C Preferred Stock will be automatically converted into shares of common stock upon an initial public offering where the per share price is at least $8.84 and the resulting aggregate gross proceeds to the Company are at least $60.0 million or upon a vote or written consent of at least 55% of the then outstanding shares of each class of Preferred Stock.

The Series C Preferred Stock holders are entitled to receive annual non-compounding cash dividends at a rate of 8% if and when declared by the Company's Board of Directors. The dividend is non-cumulative. The holders of Series C Preferred Stock shall vote together with the holders of common stock on all matters on an as if converted basis, subject to certain conversion and ownership limitations, and shall not vote as a separate class. At any time when at least 2,193,463 shares of Series C Preferred Stock (subject to adjustments) are outstanding, the Series C holders hold certain protective rights.

Upon the liquidation, dissolution or winding-up of the Company, whether voluntary or involuntary, and upon certain deemed liquidation events, including a change in control, the holders of shares of Series C Preferred Stock shall be entitled to be paid out of the assets of the Company available for distribution to its stockholders before any payments to the holders of Series A and Series B Preferred Stock and common stockholders, an amount equal to $4.559 per share, subject to adjustment plus any dividends declared but unpaid. In the event that the Company's assets are insufficient to pay the Series C Preferred Stock holders the full liquidation preference amount, all holders shall receive a ratable distribution in proportion to the full amount owed.

The Company classifies its Series C Preferred Stock outside of stockholders' deficit because redemption of the Series C Preferred Stock, upon a deemed liquidation event, is not solely within the Company's control.

Additional Liquidation Rights for Series A, Series B and Series C Preferred Stock

Upon the liquidation, dissolution or winding-up of the Company, whether voluntary or involuntary, and upon certain deemed liquidation events, including a change in control (collectively, the "Event"), after the payment of all preferential amounts required to be paid to the holders of Preferred Stock, the remaining assets of the Company available for distribution shall be distributed among the holders of shares of Series C, Series B and Series A Preferred Stock and common stockholders, on a pro rata basis, provided that A) if the aggregate amount which the holders of shares of Series C Preferred Stock are entitled to receive exceeds seven times the Series C original issue price, as adjusted, ("Series C Participation Amount") the holders of shares of Series C Preferred Stock shall be entitled to receive the greater of (i) the Series C Participation Amount and (ii) the amount such holder would have received if all the shares of Series C Preferred Stock had been converted into Common Stock immediately prior to such Event; B) if the aggregate amount which the holders of shares of Series B Preferred

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Stock are entitled to receive exceeds seven times the Series B original issue price, as adjusted, ("Series B Participation Amount") the holders of shares of Series B Preferred Stock shall be entitled to receive the greater of (i) the Series B Participation Amount and (ii) the amount such holder would have received if all the shares of Series B Preferred Stock had been converted into Common Stock immediately prior to such Event; and C) if the aggregate amount which the holders of Series A Preferred Stock are entitled to receive shall exceed seven times the Series A original issue price, as adjusted, ("Series A Participation Amount") each holder of Series A Preferred Stock shall be entitled to receive the greater of (i) the Series A Participation Amount and (ii) the amount such holder would have received if all the shares of Series A Preferred Stock had been converted into Common Stock immediately prior to such Event.

Note 6—Stock-Based Compensation

The Company's 2013 Equity Incentive Plan (the "Plan") permits the granting of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock and restricted stock units. The maximum aggregate shares of common stock that may be subject to awards and issued under the Plan was originally 583,431. On December 2, 2015, the Plan was amended to increase the maximum aggregate shares of common stock that may be subject to awards and issued under the Plan to 1,090,760. On February 20, 2018, the maximum aggregate shares of common stock that may be subject to awards and issued under the Plan was increased to 1,540,001. At March 31, 2018, 1,211,250 shares have been awarded and 328,751 shares remain available for issuance under the Plan.

Stock Options

The Company's 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 three months ended March 31, 2018 have a maximum contractual term of 10 years. The stock options are subject to time vesting requirements through 2022, are nontransferable, and have term expiration dates set to expire in February 2028.

In April 2016, the Company granted 72,927 common stock options to non-employees, subject to the terms and conditions of the Plan above. The stock options are nontransferable and have term expiration dates set to expire in April 2026. 58,343 of the common stock options are subject to time vesting requirements through 2020. The remaining 14,584 common stock options were fully vested at grant.

In January 2017, the Company granted 17,502 common stock options to an employee, subject to the terms and conditions of the Plan above. The stock options are subject to time vesting requirements through 2021, are nontransferable, and have term expiration dates set to expire in January 2027. At March 31, 2018, 5,105 of these options had vested.

On December 22, 2017, the Company's Board of Directors granted a stock option award for 724,315 shares of common stock to the Company's Chief Executive Officer ("CEO Stock Option Grant") subject to the Board of Directors approval of a valuation report as to the value of the Company common stock. On February 12, 2018, the Board determined that the exercise price of the CEO Stock Option Grant would be equal to the greater of 1) $3.75 per share or 2) the Board of Directors approval of a valuation report as to the value of the Company common stock as of February 12, 2018. On March 28, 2018, the Board approved the valuation of the Company's common stock of $6.51 per share as of February 12, 2018, which set the exercise price for 878,923 options (including 724,315 to the Company's Chief Executive Officer and 154,608 to other employees granted by the Board on December 22, 2017 and February 12, 2018, respectively) and established an accounting grant date.

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Option Awards

The fair value of each employee and non-employee stock option grant is estimated on the date of grant using the Black-Scholes option-pricing model. The Company is 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. Due to the lack of historical exercise history, the expected term of the Company's stock options for employees has been determined utilizing the "simplified" method for awards. The expected term of stock options granted to non-employees is equal to the contractual term of the option award. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award. 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 the Company's common stock was estimated to be $3.75 and $8.72 at December 31, 2017 and March 31, 2018, respectively. In order to determine the fair value, the Company considered, among other things, contemporaneous valuations of the Company's common stock, the Company's business, financial condition and results of operations, including related industry trends affecting its operations; the likelihood of achieving a liquidity event, such as an initial public offering, or IPO, or sale, given prevailing market conditions; the lack of marketability of the Company's common stock; the market performance of comparable publicly traded companies; and U.S. and global economic and capital market conditions.

The grant date fair value of employee stock option awards is determined using the Black-Scholes option-pricing model. The following assumptions were used during the three months ended March 31, 2017 and 2018 to estimate the fair value of employee stock option awards:

	For the three months ended March 31,	
	2017	**2018**
Exercise price	$0.89	$6.51
Risk-free rate of interest	1.92% - 2.23%	2.58% - 2.70%
Average expected term (years)	6.25	6.08
Expected stock price volatility	79.02% - 79.12%	70.58% - 73.53%
Weighted average share price	$0.26	$8.72
Dividend yield	—	—

Non-employee options are remeasured to fair value each period through operations using a Black-Scholes option-pricing model until the options vest. There were no stock options granted to non-employees during the three months ended March 31, 2017 and 2018. Key assumptions used to estimate the fair value of the non-employee stock options measured during the three months ended March 31, 2017 included risk-free interest rates of 2.40% to 2.48%, an expected volatility of 79.07% to 79.12%, no expected dividend yield, a weighted average common share price of $0.26 and an expected term equal to the remaining contractual option term. Key assumptions used to estimate the fair value of the non-employee stock options measured during the three months ended March 31, 2018 included risk-free interest rates of 2.33% to 2.74%, an expected volatility of 68.98% to 73.53%, no expected dividend yield, a weighted average common share price of $8.48 and an expected term equal to the remaining contractual option term.

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The following table summarizes the Company's employee stock option activity under the Plan for the three months ended March 31, 2018:

	Number of shares	Weighted average exercise price	Weighted average remaining contractual life (in years)	Aggregate intrinsic value
Outstanding as of December 31, 2017	17,502	$ 0.89	9.0	
Employee options granted	878,923	$ 6.51	9.9	
Outstanding as of March 31, 2018	896,425	$ 6.40	9.8	$ 2,080,454
Options vested and exercisable as of March 31, 2018	5,105	$ 0.89	8.8	39,988

The following table summarizes the Company's non-employee stock option activity under the Plan for the three months ended March 31, 2018:

	Number of shares	Weighted average exercise price	Weighted average remaining contractual life (in years)	Aggregate intrinsic value
Outstanding as of December 31, 2017	72,927	$ 0.89	8.3	
Non-employee options granted	—	—	—	
Outstanding as of March 31, 2018	72,927	0.89	8.0	$ 571,250
Options vested and exercisable as of March 31, 2018	44,970	0.89	8.0	352,251

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 stock option grants during the three months ended March 31, 2017 and 2018 was $0.12 and $6.07. At March 31, 2018, the total unrecognized compensation related to unvested employee and non-employee stock option awards granted was $5,343,928, which the Company expects to recognize over a weighted-average period of approximately 1.8 years.

Stock-based compensation expense has been reported in the Company's condensed statements of operations for the three months ended March 31, 2017 and 2018 as follows:

	For the three months ended March 31,	
	2017	2018
	(in thousands)	
General and administrative	$ —	$ 45
Research and development	1	117
Total stock-based compensation	$ 1	$ 162

On February 12, 2018, the Board approved stock option awards to employees for 186,696 options to acquire common stock, with the exercise price of these awards to be established at the fair value of the Company's common stock as of February 26, 2018 for 113,768 options and March 5, 2018 for 72,928 options. An accounting grant date for these awards was established upon approval by the Board of a valuation report on the Company's common stock as of the applicable dates on April 24, 2018.

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Note 7—Subsequent Events

On April 9, 2018, the Company entered into an agreement to sublease 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 April 24, 2018, the Board approved the valuation of the Company's common stock of $6.86 per share as of each of February 26, 2018 and March 5, 2018, which set the exercise price for 186,696 options that were approved by the Board on February 12, 2018, and established an accounting grant date.

On April 24, 2018, the Board approved the valuation of the Company's common stock of $8.72 per share as of April 4, 2018, which set the exercise price for 87,514 options that were approved by the Board on March 20, 2018, and established an accounting grant date.

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 condensed 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 condensed 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 have been adjusted to reflect the reverse stock split.

Through and including July 9, 2018 (the 25th day after the date of this prospectus), all dealers effecting transactions in the Common Stock, whether or not participating in this offering, may be required to deliver a prospectus. This delivery requirement is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

5,000,000 Shares

Common Stock

PROSPECTUS

BofA Merrill Lynch

Jefferies

Cowen

June 14, 2018