

PROSPECTUS



**\$20,000,000**

**Common Stock**

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We have entered into a certain sales agreement, or the sales agreement, with Cowen and Company, LLC, or Cowen, relating to shares of our common stock offered by this prospectus. In accordance with the terms of the sales agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to \$50.0 million from time to time through Cowen. This prospectus is only offering \$20.0 million in shares of our common stock. We will be required to file a prospectus supplement in the event we want to offer more than \$20.0 million in shares of our common stock in accordance with the sales agreement.

Our common stock is traded on the NASDAQ Global Market, or the Exchange, under the symbol “KMPH.” On September 30, 2016, the last reported sale price of our common stock was \$4.49 per share.

The aggregate market value of our outstanding common stock held by non-affiliates as of the date of this prospectus is \$60,561,530 based on 11,646,448 shares of outstanding common stock held by non-affiliates, and a per share price of \$5.20 based on the closing sale price of our common stock on August 23, 2016 (a date within 60 days of the date hereof). Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities registered on the registration statement of which this prospectus is a part in a public primary offering with a value exceeding more than one-third of our public float in any 12-month period if our public float, measured in accordance with such instruction, remains below \$75.0 million. As of the date hereof, we have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the 12 calendar months prior to and including the date of this prospectus.

Sales of our common stock, if any, under this prospectus may be made in sales deemed to be “at-the-market” equity offerings as defined in Rule 415 promulgated under the Securities Act of 1933, as amended, or the Securities Act, including sales made directly on or through the Exchange, the existing trading market for our common stock, sales made other than on an exchange or otherwise, in negotiated transactions at market prices prevailing at the time of sale or at prices related to such prevailing market prices, and/or any other method permitted by law. Cowen is not required to sell any specific number or dollar amount of securities, but will act as a sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between Cowen and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The compensation to Cowen for sales of common stock sold pursuant to the sales agreement will be an amount up to 3% of the gross proceeds of any shares of common stock sold under the sales agreement. In connection with the sale of the common stock on our behalf, Cowen will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of Cowen will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to Cowen with respect to certain liabilities, including liabilities under the Securities Act or the Exchange Act of 1934, as amended, or the Exchange Act.

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***Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading “[Risk Factors](#)” on page S-5 of this prospectus and under similar headings in the other documents that are incorporated by reference into this prospectus.***

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**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.**

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**Cowen and Company**

**The date of this prospectus is October 17, 2016.**

**TABLE OF CONTENTS**

**Prospectus**

	<u>Page</u>
<a href="#">ABOUT THIS PROSPECTUS</a>	S-i
<a href="#">PROSPECTUS SUMMARY</a>	S-1
<a href="#">THE OFFERING</a>	S-4
<a href="#">RISK FACTORS</a>	S-5
<a href="#">SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS</a>	S-7
<a href="#">USE OF PROCEEDS</a>	S-8
<a href="#">DILUTION</a>	S-9
<a href="#">DESCRIPTION OF CAPITAL STOCK</a>	S-11
<a href="#">PLAN OF DISTRIBUTION</a>	S-17
<a href="#">LEGAL MATTERS</a>	S-18
<a href="#">EXPERTS</a>	S-18
<a href="#">WHERE YOU CAN FIND MORE INFORMATION</a>	S-18
<a href="#">INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</a>	S-18

## ABOUT THIS PROSPECTUS

This prospectus relates to the offering of our common stock. Before buying any of the common stock that we are offering, we urge you to carefully read this prospectus, together with the information incorporated by reference as described under the headings “Where You Can Find More Information” and “Incorporation of Certain Information by Reference” in this prospectus. These documents contain important information that you should consider when making your investment decision.

This prospectus describes the terms of this offering of common stock and also adds to and updates information contained in the documents incorporated by reference into this prospectus. To the extent there is a conflict between the information contained in this prospectus, on the one hand, and the information contained in any document incorporated by reference into this prospectus that was filed with the Securities and Exchange Commission, or SEC, before the date of this prospectus, on the other hand, you should rely on the information in this prospectus. If any statement in one of these documents is inconsistent with a statement in another document having a later date (for example, a document incorporated by reference into this prospectus) the statement in the document having the later date modifies or supersedes the earlier statement.

You should rely only on the information contained in or incorporated by reference in this prospectus and in any free writing prospectus that we have authorized for use in connection with this offering. We have not, and the sales agent has not, authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the sales agent is not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus, the documents incorporated by reference in this prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus, the documents incorporated by reference in this prospectus, and any free writing prospectus that we have authorized for use in connection with this offering, in their entirety before making an investment decision.

Unless otherwise mentioned or unless the context requires otherwise, all references in this prospectus to “KemPharm,” “company,” “we,” “us” and “our” or similar references refer to KemPharm, Inc.

**PROSPECTUS SUMMARY**

*This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our company and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus, including the information incorporated by reference in this prospectus, and the information included in any free writing prospectus that we have authorized for use in connection with this offering, including the information under the heading “Risk Factors” in this prospectus on page S-5 and in the documents incorporated by reference into this prospectus.*

**Company Overview**

We are a clinical-stage specialty pharmaceutical company engaged in the discovery and development of proprietary prodrugs that we believe will be improved versions of widely prescribed, approved drugs. We employ our Ligand Activated Therapy, or LAT, platform technology to create our prodrugs, which in some cases may be eligible for composition-of-matter patent protection. We are building a pipeline of prodrug product candidates that target large market opportunities in pain, attention deficit hyperactivity disorder, or ADHD, and central nervous system, or CNS, disorders. Our two lead product candidates are KP415, our extended release, or ER, d-three-methylphenidate product candidate for the treatment of ADHD, and KP201/IR, our single-entity, benzhydrocodone hydrochloride immediate-release, or IR, abuse-deterrent product candidate designed for the treatment of acute pain. We own worldwide commercial rights for all of our product candidates, except that Shire Pharmaceuticals, LLC has a right of first refusal to acquire, license or commercialize KP415.

We previously submitted a new drug application, or NDA, to the U.S. Food and Drug Administration, or FDA, for our product candidate Apadaz, which consists of KP201, our prodrug of hydrocodone, and acetaminophen. In June 2016, the FDA issued a complete response letter, or CRL, for our Apadaz NDA. Generally, the FDA issues CRLs to indicate that the FDA considers the review cycle for an application complete and that the application is not ready for approval in its present form. In its CRL, the FDA advised us that it did not believe our proposed labeling included in the application accurately conveyed the outcome of our abuse deterrent studies of Apadaz. In August 2016, we completed our end-of-review meeting with the FDA. At the end-of-review meeting, we discussed with the FDA the issues identified by the FDA in the Apadaz NDA and what we believe is the potential to achieve a path forward for an Apadaz product label that could include abuse deterrence claims. The meeting also involved discussions pertaining to abuse deterrence in relation to the broader IR prescription opioid market, hydrocodone-acetaminophen combination products, and published industry guidance from the FDA concerning the evaluation and labeling of abuse deterrent opioids. We have notified the FDA that we will elect to continue the regulatory review process for Apadaz with the submission of a Formal Dispute Resolution Request, or FDRR. We anticipate up to twelve months may be required to complete all parts of the FDRR process.

We have employed our LAT platform technology to create a portfolio of product candidates that we believe will offer significant improvements over FDA-approved and widely prescribed drugs. Our pipeline of product candidates is summarized in the table below:

**Selected KemPharm Prodrug Product Candidates**

<b>Indication / Parent Drug</b>	<b>Product Candidate</b>	<b>Development Status</b>	<b>Key Milestone</b>
<b>Pain</b>			
Hydrocodone (IR)	Apadaz	FDA End-of-Review Meeting August 2016	FDRR Submission
Hydrocodone (IR)	KP201/IR (APAP-free)	Clinical	NDA Submission - 2018 Human POC Data - 2H 2017
Hydromorphone (ER)	KP511/ER	“Fast Track” Designation May 2016	NDA Submission - 2019 Human POC Data - Q1 2017
Oxycodone (IR)	KP606/IR	Preclinical	NDA Submission - TBD

## Table of Contents

Oxymorphone <b>ADHD</b>	KP746	Preclinical	Human POC Data - TBD
Methylphenidate (controlled release)	KP415	Preclinical	NDA Submission - 2018 Human POC Data - Q4 2016
<b>CNS</b> Quetiapine	KP303	Preclinical	Human POC Data - TBD

### **Risks Associated with our Business**

Our business is subject to numerous risks and uncertainties, including those highlighted in the section titled “Risk Factors” immediately following this prospectus summary and those described under similar headings in the documents incorporated by reference into this prospectus. These risks include:

- If we are not able to obtain required regulatory approvals for our product candidates, we will not be able to commercialize them and our ability to generate revenue or profits or to raise future capital could be limited.
- We are very early in our development efforts and only a limited number of our product candidates have entered clinical development. All of our other active product candidates are still in preclinical development. If we are unable to commercialize our product candidates, or experience significant delays in doing so, our business will be harmed.
- Clinical drug development involves a lengthy and expensive process, with an uncertain outcome. We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.
- We have incurred significant operating losses since our inception. We expect to incur operating losses over the next several years and may never achieve or maintain profitability.
- We will need substantial additional funding to pursue our business objectives. If we are unable to raise capital when needed, we could be forced to delay, reduce or altogether cease our prodrug development programs or commercialization efforts.
- If we are unable to obtain and maintain trade secret protection or patent protection for our technology and product candidates or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize technology and drugs similar or identical to ours, and our ability to successfully commercialize our technology and product candidates may be impaired.
- Our ability to market and promote our products in the United States by describing their abuse-deterrent features will be determined by the FDA-approved labeling for them.
- The FDA may determine that any NDA we may submit under the 505(b)(2) regulatory pathway for any of our product candidates in the future is not sufficiently complete to permit a substantive review.
- If the FDA does not conclude that our product candidates are sufficiently bioequivalent, or have comparable bioavailability, to approved drugs, or if the FDA does not allow us to pursue the 505(b)(2) NDA pathway as anticipated, the approval pathway for our product candidates will likely take significantly longer, cost significantly more and entail significantly greater complications and risks than anticipated, and the FDA may not ultimately approve our product candidates.
- If we are unable to establish sales, marketing and distribution capabilities for our product candidates, we may not be successful in commercializing those product candidates in the United States, if and when they are approved.
- Even if we are able to commercialize any product candidates, they may be subject to unfavorable pricing regulations, third-party coverage and reimbursement policies or healthcare reform initiatives.

### **Corporate Information**

We were incorporated under the laws of the State of Iowa in October 2006 and were reincorporated under the laws of the State of Delaware in May 2014. Our principal executive offices are located at 2656 Crosspark Road, Suite 100, Coralville, IA 52241 and our telephone number is (319) 665-2575. Our website address is [www.kempharm.com](http://www.kempharm.com). The information contained on our website is not incorporated by reference into this prospectus, and you should not consider any information contained on, or that can be accessed through, our website as part of this prospectus or in deciding whether to purchase our common stock.

“KemPharm”, the KemPharm logo, “Apadaz” and other trademarks or service marks of KemPharm, Inc. appearing in this prospectus are the property of KemPharm, Inc. This prospectus and the information incorporated herein by reference contains additional trade names, trademarks and service marks of others, which are the property of their respective owners.

### **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:

- presentation of 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;
- exemption from the auditor attestation requirement on the effectiveness of our internal controls over financial reporting;
- reduced disclosure about our executive compensation arrangements; and
- no requirements for non-binding advisory votes on executive compensation or golden parachute arrangements.

We may take advantage of these provisions until December 31, 2019 or such earlier time that we no longer qualify as an emerging growth company. We would cease to be an emerging growth company if we have more than \$1.0 billion in annual revenue, have more than \$700 million in market value of our capital stock held by non-affiliates or issue more than \$1.0 billion of non-convertible debt over a three-year period. We may choose to take advantage of some but not all of these reduced burdens. For example, we have taken advantage of the reduced reporting requirements with respect to disclosure regarding our executive compensation arrangements, have presented only two years of audited financial statements, have presented reduced “Management’s Discussion and Analysis of Financial Condition and Results of Operations” disclosure and have taken advantage of the exemption from auditor attestation on the effectiveness of our internal controls over financial reporting. To the extent that we take advantage of these reduced 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.

**THE OFFERING**

Common Stock Offered By Us	Shares of our common stock having an aggregate offering price of up to \$20.0 million.
Manner of Offering	“At-the-market” offering that may be made from time to time through our sales agent, Cowen. See “Plan of Distribution” on page S-17.
Use of Proceeds	We currently intend to use the net proceeds from this offering primarily to fund the research and development of the clinical and preclinical prodrug product candidates in our pipeline and for working capital and general corporate purposes. See “Use of Proceeds” on page S-8 of this prospectus.
Risk Factors	Investing in our common stock involves significant risks. See “Risk Factors” on page S-5 of this prospectus, and under similar headings in other documents incorporated by reference into this prospectus.
NASDAQ Global Market Symbol	“KMPH”

## RISK FACTORS

*Investing in our securities involves a high degree of risk. You should carefully review the risks and uncertainties described below and under the section titled “Risk Factors” in our Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, as updated by our annual, quarterly and other reports and documents that are incorporated by reference into this prospectus, before deciding whether to purchase any of the securities being registered pursuant to the registration statement of which this prospectus is a part. Each of the risk factors could adversely affect our business, operating results and financial condition, as well as adversely affect the value of an investment in our securities, and the occurrence of any of these risks might cause you to lose all or part of your investment. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations. Please also read carefully the section below titled “Special Note Regarding Forward-Looking Statements.”*

### ADDITIONAL RISKS RELATED TO THIS OFFERING

#### ***You may experience dilution.***

The offering price per share in this offering may exceed the net tangible book value per share of our common stock outstanding prior to this offering. Assuming that an aggregate of 4,454,342 shares of our common stock are sold at a price of \$4.49 per share, the last reported sale price of our common stock on the Exchange on September 30, 2016, for aggregate gross proceeds of \$20.0 million, and after deducting commissions and estimated offering expenses payable by us, you would experience immediate dilution of \$3.48 per share, representing the difference between our as adjusted net tangible book value per share as of June 30, 2016 after giving effect to this offering and the assumed offering price. The exercise of outstanding stock options and warrants or the conversion of our outstanding convertible notes would result in further dilution of your investment. See the section entitled “Dilution” below for a more detailed illustration of the dilution you would incur if you participate in this offering. Because the sales of the shares offered hereby will be made directly into the market or in negotiated transactions, the prices at which we sell these shares will vary and these variations may be significant. Purchasers of the shares we sell, as well as our existing shareholders, will experience significant dilution if we sell shares at prices significantly below the price at which they invested.

#### ***A significant portion of our outstanding warrants and a portion of our convertible debt are entitled to certain anti-dilution protections, which, if triggered, may cause substantial dilution to your investment.***

As of June 30, 2016, we had outstanding immediately exercisable warrants to purchase 59,714 shares of our common stock at a weighted average exercise price of \$5.85 per share that include anti-dilution provisions pursuant to which the exercise price of such warrants will be adjusted downward if we issue any shares of our common stock or any securities convertible into our common stock at a price per share or with an exercise or conversion price less than the exercise price of such warrants. Upon such an event, the exercise price of these warrants will be automatically adjusted to equal the price per share paid for, the conversion price of or the exercise price of such securities, as applicable, and the number of shares of common stock issuable upon exercise of each warrant will be proportionately increased.

Additionally, in June 2014, we issued to Deerfield Private Design Fund III, L.P., or Deerfield, (i) a warrant to purchase 14,423,076 shares of our Series D redeemable convertible preferred stock at an exercise price of \$0.78 per share, which is exercisable until June 2, 2024, or the Deerfield warrant, and (ii) a secured convertible note, or the Deerfield Note, in the principal amount of \$10.0 million which bears interest at 9.75% per annum. Upon completion of our initial public offering, the Deerfield warrant automatically converted into a warrant to purchase 1,923,077 shares of our common stock at an exercise price of \$5.85 per share and the outstanding principal and accrued interest under the Deerfield Note became convertible into shares of our common stock at a conversion price of \$5.85 per share. The Deerfield warrant and note each includes an exercise or a conversion, as applicable, price protection provision pursuant to which the exercise or conversion price, as applicable, of the warrant or note will be adjusted downward on a broad-based weighted-average basis if we issue or sell any shares of common stock, convertible securities, warrants or options, at a sale or exercise price per share less than the greater of the Deerfield warrant’s exercise price or the Deerfield Note’s conversion price, as applicable, or the closing sale price of our common stock as reported on the Exchange on the last trading date immediately prior to such issuance or, in the case of a firm commitment underwritten offering, on the date of execution of the underwriting agreement between us and the underwriters for such offering. Although, if we sell shares of our common stock in an “at the market offering” (as defined in Rule 415 of the Securities Act), including in this offering, then the Deerfield warrant’s exercise price or the Deerfield Note’s conversion price, as applicable, will be adjusted downward only if the sales price of such shares of common stock is less than the then applicable conversion price of the Deerfield warrant or exercise price of the Deerfield Note.

***We may be liable to certain of our warrant holders, which could increase our expenses and reduce our cash resources.***

Pursuant to the terms of some of our outstanding warrants, as of June 30, 2016, the holders of 8,686 shares of our outstanding common stock and 17,082 shares of our common stock issuable upon exercise of outstanding warrants have the right to notice of and to have any shares of our common stock issued, or which are issuable, upon exercise of these warrants included in any registered offering of our common stock after the date of our initial public offering, including this offering. We have not complied with the notice rights of these holders nor have we provided these holders with the opportunity to participate in this offering. If we fail or have failed to comply with these registration rights, then we may be subject to an action for damages or other relief by the harmed warrant holders, if any. Any payment of damages would increase our expenses, reduce our cash resources and may limit or preclude us from advancing our product candidates through clinical trials or otherwise growing our business.

***Our management might apply the net proceeds from this offering in ways with which you do not agree and in ways that may impair the value of your investment.***

We currently intend to use the net proceeds from this offering primarily to fund the research and development of the clinical and preclinical prodrug product candidates in our pipeline and for working capital and general corporate purposes. Pending these uses, we expect to invest the net proceeds in short-term, interest bearing obligations, certificates of deposit or direct or guaranteed obligations of the United States. Our management has broad discretion as to the use of these proceeds and you will be relying on the judgment of our management regarding the application of these proceeds. We might apply these proceeds in ways with which you do not agree, or in ways that do not yield a favorable return. If our management applies these proceeds in a manner that does not yield a significant return, if any, on our investment of these net proceeds, it could compromise our ability to pursue our growth strategy and adversely affect the market price of our common stock.

## SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference contain forward-looking statements. These are based on our management's current beliefs, expectations and assumptions about future events, conditions and results and on information currently available to us. Discussions containing these forward-looking statements may be found, among other places, in the Sections entitled "Business," "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" incorporated by reference from our most recent Quarterly Report on Form 10-Q, as well as any amendments thereto, filed with the SEC.

Any statements in this prospectus, or incorporated herein, about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and are forward-looking statements. Within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act, these forward-looking statements include statements regarding:

- the progress of, timing of and amount of expenses associated with our research, development and commercialization activities;
- the timing, conduct and success of our clinical studies for our product candidates;
- our ability to obtain U.S. and foreign regulatory approval for our product candidates and the ability of our product candidates to meet existing or future regulatory standards;
- our expectations regarding federal, state and foreign regulatory requirements;
- the therapeutic benefits and effectiveness of our product candidates;
- the accuracy of our estimates of the size and characteristics of the markets that may be addressed by our product candidates;
- our ability to manufacture sufficient amounts of our product candidates for clinical studies and products for commercialization activities;
- our intention to seek to establish strategic collaborations or partnerships for the development or sale of our product candidates;
- our expectations as to future financial performance, expense levels and liquidity sources;
- the timing of commercializing our product candidates;
- our ability to compete with other companies that are or may be developing or selling products that are competitive with our product candidates;
- anticipated trends and challenges in our potential markets; and
- our ability to attract and retain key personnel.

In some cases, you can identify forward-looking statements by the words "may," "might," "can," "will," "to be," "could," "would," "should," "expect," "intend," "plan," "objective," "anticipate," "believe," "estimate," "predict," "project," "potential," "likely," "continue" and "ongoing," or the negative of these terms, or other comparable terminology intended to identify statements about the future, although not all forward-looking statements contain these words. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements.

You should refer to the "Risk Factors" section contained in this prospectus and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into 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. Given these risks, uncertainties and other factors, many of which are beyond our control, we cannot assure you that the forward-looking statements in this prospectus will prove to be accurate, and you should not place undue reliance on these forward-looking statements. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all.

Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to revise any forward-looking statements to reflect events or developments occurring after the date of this prospectus, even if new information becomes available in the future.

## USE OF PROCEEDS

We may issue and sell shares of our common stock having aggregate sales proceeds of up to \$20.0 million from time to time. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. There can be no assurance that we will sell any shares under or fully utilize the sales agreement with Cowen as a source of financing.

We currently intend to use the net proceeds from this offering primarily to fund the research and development of the clinical and preclinical prodrug product candidates in our pipeline and for working capital and general corporate purposes. We may also use a portion of the net proceeds to invest in or acquire businesses or technologies that we believe are complementary to our own, although we have no current plans, commitments or agreements with respect to any acquisitions as of the date of this prospectus. Pending these uses, we expect to invest the net proceeds in short-term, interest bearing obligations, certificates of deposit or direct or guaranteed obligations of the United States.

## DILUTION

Our net tangible book value as of June 30, 2016 was approximately \$0.3 million, or \$0.02 per share. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of June 30, 2016. Dilution with respect to net tangible book value per share represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the net tangible book value per share of our common stock immediately after this offering.

After giving effect to the sale of 4,454,342 shares of our common stock in this offering at an assumed offering price of \$4.49 per share, the last reported sale price of our common stock on the Exchange on September 30, 2016, and after deducting estimated offering commissions and offering expenses payable by us, our as adjusted net tangible book value as of June 30, 2016 would have been approximately \$19.4 million, or \$1.01 per share. This represents an immediate increase in net tangible book value of \$0.99 per share to existing stockholders and immediate dilution of \$3.48 per share to investors purchasing our common stock in this offering at the public offering price. The following table illustrates this dilution on a per share basis:

Assumed public offering price per share	\$4.49
Net tangible book value per share of as June 30, 2016	\$0.02
Increase in net tangible book value per share attributable to this offering	<u>\$0.99</u>
As adjusted net tangible book value per share as of June 30, 2016, after giving effect to this offering	<u>\$1.01</u>
Dilution per share to investors purchasing our common stock in this offering	<u>\$3.48</u>

The above discussion and table are based on 14,646,892 shares of our common stock outstanding as of June 30, 2016, and exclude:

- 2,238,153 shares of our common stock issuable upon the exercise of stock options outstanding as of June 30, 2016, at a weighted average exercise price of \$13.78 per share;
- 2,087,477 shares of our common stock issuable upon exercise of warrants outstanding as of June 30, 2016, at a weighted average exercise price of \$5.85 per share;
- 2,088,931 shares of our common stock issuable upon conversion of principal and accrued interest underlying the Deerfield Note outstanding as of June 30, 2016, assuming a conversion date of June 30, 2016, and any additional shares of our common stock issuable as a result of any anti-dilution adjustments under the Deerfield Note;
- 1,130,111 shares of our common stock reserved for future issuance under our 2014 equity incentive plan as well as any automatic increases in the number of shares of common stock reserved for future issuance under this plan; and
- 5,040,914 shares of our common stock issuable upon conversion of principal and accrued interest underlying the 2021 Notes, assuming a conversion date of June 30, 2016.

The table above assumes for illustrative purposes that an aggregate of 4,454,342 shares of our common stock are sold during the term of the sales agreement with Cowen at a price of \$4.49 per share, the last reported sale price of our common stock on the Exchange on September 30, 2016, for aggregate gross proceeds of \$20.0 million. The shares subject to the sales agreement with Cowen are being sold from time to time at various prices. An increase of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$5.49 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$20.0 million during the term of the sales agreement with Cowen is sold at that price, would increase our adjusted net tangible book value per share after the

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## [Table of Contents](#)

offering to \$1.06 per share and would increase the dilution in net tangible book value per share to new investors in this offering to \$4.43 per share, after deducting commissions and estimated aggregate offering expenses payable by us. A decrease of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$3.49 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$20.0 million during the term of the sales agreement with Cowen is sold at that price, would decrease our adjusted net tangible book value per share after the offering to \$0.95 per share and would decrease the dilution in net tangible book value per share to new investors in this offering to \$2.54 per share, after deducting commissions and estimated aggregate offering expenses payable by us. This information is supplied for illustrative purposes only.

To the extent that outstanding options or warrants outstanding as of June 30, 2016 have been or may be exercised or other shares issued, investors purchasing our common stock in this offering may experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

## 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 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

Under our amended and restated certificate of incorporation we are authorized to issue up to 250,000,000 shares of common stock, \$0.0001 par value per share, and 10,000,000 shares of preferred stock, \$0.0001 par value per share, all of which shares of preferred stock are undesignated. Our board of directors may establish the rights and preferences of the preferred stock from time to time. As of June 30, 2016, we had outstanding 14,646,982 shares of common stock.

### Common Stock

#### *Voting Rights*

Each holder of our common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. Under our amended and restated certificate of incorporation and amended and restated bylaws, our stockholders do not have cumulative voting rights. 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 rights of the holders of shares of any series of preferred stock that we may designate in the future.

### Preferred Stock

Pursuant to our amended and restated certificate of incorporation, our board of directors has the authority, without further action by 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.

## Notes

On June 2, 2014, we issued to Deerfield the Deerfield Note in the principal amount of \$10.0 million. The Deerfield Note bears interest at 9.75% per annum. Deerfield may convert all or any portion of the outstanding principal, and any accrued but unpaid interest thereon, of the Deerfield Note into shares of our common stock at a price per share of \$5.85. According to the terms of the Deerfield Note, in no event may Deerfield convert this note if such conversion would result in Deerfield beneficially owning more than 9.985% of the then issued and outstanding shares of our common stock. This conversion limitation may not be waived and any purported conversion that is inconsistent with this conversion limitation is null and void. This conversion limitation will not apply to any conversion made immediately prior to a change of control transaction. If Deerfield is only able to convert the Deerfield Note into a limited number of shares due to this conversion limitation, the Deerfield Note could subsequently become convertible into the remainder of the shares as a result of a variety of events. This could occur, for example, if we issue more shares or Deerfield sells some of its existing shares. Without regard to this conversion limitation, the Deerfield Note is convertible into 2,088,931 shares of our common stock, assuming a conversion date of June 30, 2016. The conversion price, and the number of shares issued upon conversion, of the Deerfield Note is subject to adjustment in the event of certain stock dividends, stock splits, recapitalizations, reclassifications and consolidations. The conversion price of the Deerfield Note will be adjusted downward if we issue or sell any shares of common stock, convertible securities, warrants or options at a sale or exercise price per share less than the greater of the Deerfield Note's conversion price or the closing sale price of our common stock as reported on the Exchange on the last trading date immediately prior to such issuance, or, in the case of a firm commitment underwritten offering, on the date of execution of the underwriting agreement between us and the underwriters for such offering. The sale price for purposes of this adjustment is measured after giving effect to any underwriting discounts and commissions. Although, if we sell shares of our common stock in an "at the market offering" (as defined in Rule 415 of the Securities Act), then the Deerfield Note's conversion price will be adjusted downward only if the sales price of such shares of common stock is less than the then applicable conversion price of the Deerfield Note. Additionally, the sales price in such "at the market offering" shall not be adjusted for any fee paid to a placement agent, sales agent or party operating in a similar capacity for such sales.

In February 2016, we issued the 2021 Notes to Cowen and RBC Capital Markets, LLC as representatives of the several initial purchasers, who subsequently resold the 2021 Notes to qualified institutional buyers in reliance on the exemption from registration provided by Rule 144A under the Securities Act. The 2021 Notes were issued pursuant to an indenture, dated as of February 9, 2016, or the indenture, between the Company and U.S. Bank National Association, as trustee. Interest on the 2021 Notes will be payable semi-annually in cash in arrears on February 1 and August 1 of each year, beginning on August 1, 2016, at a rate of 5.50% per year. The 2021 Notes mature on February 1, 2021 unless earlier converted or repurchased. The 2021 Notes are not redeemable prior to the maturity date, and no sinking fund is provided for the 2021 Notes. The 2021 Notes are convertible at an initial conversion rate of 58.4454 shares of our common stock per \$1,000 principal amount of the 2021 Notes, subject to adjustment under the indenture, which is equal to an initial conversion price of approximately \$17.11 per share of our common stock. Upon conversion, the 2021 Notes will be settled in shares of our common stock, together with a cash payment in lieu of delivering any fractional shares. The conversion rate will be subject to adjustment in some events but will not be adjusted for any accrued and unpaid interest. In addition, following certain corporate events that occur prior to the maturity date, we will increase the conversion rate for a holder who elects to convert its 2021 Notes in connection with such a corporate event in certain circumstances. If we undergo a "fundamental change" (as defined in the indenture), holders may require that we repurchase for cash all or any portion of their 2021 Notes at a fundamental change repurchase price equal to 100% of the principal amount of the 2021 Notes to be repurchased, plus accrued and unpaid interest to, but excluding, the fundamental change repurchase date. Holders who convert on or after the date that is one year after the last date of original issuance of the 2021 Notes may also be entitled to receive, under certain circumstances, an interest make-whole payment payable in shares of our common stock. The indenture includes customary terms and covenants, including certain events of default after which the 2021 Notes may be due and payable immediately.

## Warrants

As of June 30, 2016, we have outstanding immediately exercisable warrants to purchase 2,087,477 shares of our common stock at a weighted average exercise price of \$5.85 per share and which expire between April 21, 2017 and June 2, 2024. The warrants include a net exercise provision and contain provisions for the adjustment of the exercise price and the number of shares issuable upon the exercise of each warrant in the event of certain stock dividends, stock splits, reorganizations, reclassifications and consolidations. Additionally, some of these warrants include

## [Table of Contents](#)

antidilution provisions pursuant to which the exercise price of the common stock warrants will be adjusted downward if we issue any shares of our common stock at price per share or any securities convertible into our common stock with an exercise price less than the exercise price of such warrants. Upon such an event, the exercise price of such warrants will be automatically adjusted to equal the price per share paid for, or the conversion price of or the exercise price of, such securities, as applicable, and the number of shares of common stock issuable upon exercise of each warrant will be proportionately adjusted. We have also granted piggyback registration rights to certain common stock warrant holders, as more fully described below under “—Registration Rights.”

In June 2014, in connection with our entering into our credit facility agreement with Deerfield, dated June 2, 2014, or the Deerfield facility, we issued to Deerfield the Deerfield warrant to purchase 14,423,076 shares of Series D redeemable convertible preferred stock at an exercise price of \$0.78 per share, which is exercisable until June 2, 2024. Upon completion of our initial public offering, the Deerfield warrant automatically converted into a warrant to purchase 1,923,077 shares of our common stock at an exercise price of \$5.85 per share. According to the terms of the Deerfield warrant, in no event may Deerfield exercise this warrant if such exercise would result in Deerfield beneficially owning more than 9.985% of the then issued and outstanding shares of our common stock. This exercise limitation may not be waived and any purported exercise that is inconsistent with this exercise limitation is null and void. This exercise limitation will not apply to any exercise made immediately prior to a change of control transaction. If Deerfield is only able to exercise the Deerfield warrant for a limited number of shares due to this exercise limitation, the Deerfield warrant could subsequently become exercisable to purchase the remainder of the shares as a result of a variety of events. This could occur, for example, if we issue more shares or Deerfield sells some of its existing shares. The Deerfield warrant includes a net exercise provision and contains provisions for the adjustment of the exercise price and the number of shares issuable upon the exercise of the warrant in the event of certain stock dividends, stock splits, recapitalizations, reclassifications and consolidations. Under the Deerfield warrant, Deerfield also has the right to demand upon the occurrence of specified events, including a merger, asset sale or other change of control transaction, that we redeem the Deerfield warrant for cash amount equal to the Black-Scholes value of the portion of the Deerfield warrant to be redeemed. If Deerfield chooses not to redeem the Deerfield warrant upon the occurrence of such an event, we may not enter into any such transaction unless our successor entity assumes in writing all our obligations under both the Deerfield warrant and the Deerfield facility and provides Deerfield with certain registration rights.

The Deerfield warrant includes certain exercise price protection provisions pursuant to which the exercise price of the Deerfield warrant will be adjusted downward on a broad-based weighted average basis if we issue or sell any shares of common stock, convertible securities, warrants or options, including in this offering, at a sale or exercise price per share less than the greater of the Deerfield warrant’s exercise price or the closing sale price of our common stock as reported on the Exchange on the last trading date immediately prior to such issuance or, in the case of a firm commitment underwritten offering, on the date of execution of the underwriting agreement between us and the underwriters for such offering. The sale price for purposes of this adjustment is measured after giving effect to any underwriting discounts and commissions. Although, if we sell shares of our common stock in an “at the market offering” (as defined in Rule 415 of the Securities Act ), then the Deerfield warrant’s exercise price will be adjusted downward only if the sales price of such shares of common stock is less than the then applicable conversion price of the Deerfield warrant. Additionally, the sales price in such “at the market offering” shall not be adjusted for any fee paid to a placement agent, sales agent or party operating in a similar capacity for such sales.

### **Registration Rights**

We and the holders of shares of our common stock issued upon the conversion or reclassification of our redeemable convertible preferred stock have entered into an investors’ rights agreement. The registration rights provisions of this agreement provide (i) some of these holders with demand and Form S-3 registration rights, and (ii) all holders with piggyback registration rights with respect to the shares of our common stock currently held by them and issuable to them upon exercise of warrants. The following information is qualified entirely by reference to the applicable provisions of the investors’ rights agreement, which is incorporated by reference as an exhibit into the registration statement of which this prospectus is a part.

### ***Demand Registration Rights***

Deerfield has the right to demand, and some holders of shares of our common stock that were issued upon conversion or reclassification of our redeemable convertible preferred stock have the right to participate in any such demand, that we file a Form S-1 registration statement, as long as the anticipated aggregate offering price, net of underwriting discounts and commissions, would exceed \$15.0 million. Upon receipt of this demand, the holders of shares of our common stock that were issued upon conversion or reclassification of our redeemable convertible preferred stock and some holders of shares of our common stock would be entitled to participate in this registration. These registration rights are subject to specified conditions and limitations, including the right of the underwriters, if any, to limit the number of shares included in any such registration under specified circumstances. Upon such a request, we are required to effect the registration as soon as reasonably possible.

### ***Piggyback Registration Rights***

If we propose to register any of our securities under the Securities Act either for our own account or for the account of other stockholders, some holders of shares of common stock that were issued upon conversion or reclassification of our redeemable convertible preferred stock, including Deerfield, some holders of shares of our common stock and some holders of warrants to purchase our common stock are each entitled to notice of the registration and will be entitled to include their shares of common stock in the registration statement, provided that the holders of our common stock warrants may include their shares of common stock in such registration only if the aggregate value of such shares would be equal to or greater than \$5.0 million in the offering or if such shares constitute all the shares of our common stock held by such holder. 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. The holders of piggyback registration rights under our investors' rights agreement have waived these rights as they may apply to the filing of the registration statement of which this prospectus is a part.

### ***Registration on Form S-3***

Deerfield is entitled, upon its written request, and some holders of shares of our common stock that were issued upon conversion or reclassification of our redeemable convertible preferred stock have the right to participate in any such demand, to have such shares registered by us on a Form S-3 registration statement at our expense, subject to other specified conditions and limitations. Upon receipt of that demand, the holders of shares of common stock that were issued upon conversion or reclassification of our redeemable convertible preferred stock and some holders of shares of our common stock would be entitled to participate in that registration.

### ***Expenses of Registration***

We will pay all expenses relating to any demand, piggyback or Form S-3 registration, other than underwriting discounts and commissions, subject to specified conditions and limitations.

### ***Termination of Registration Rights***

The registration rights granted under the investors' rights agreement will terminate upon the earliest to occur of (i) written consent of Deerfield and the stockholders holding a majority of the registrable securities then outstanding, (ii) the two-year anniversary of our initial public offering and (iii) at such time that a holder may sell all of its shares pursuant to Rule 144 under the Securities Act during a three-month period without registration.

### ***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.

## Table of Contents

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

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits by or through the corporation.

In general, Section 203 defines an “interested stockholder” as an entity or person who, together with the person’s affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

### ***Certificate of Incorporation and Bylaws***

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

Our amended and restated certificate of incorporation and amended and restated bylaws also provide that all stockholder actions must be effected at a duly called meeting of stockholders and will eliminate the right of stockholders to act by written consent without a meeting. Our amended and restated bylaws also provide that only our chairman of the board, chief executive officer or the board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors may call a special meeting of stockholders.

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

Our amended and restated certificate of incorporation and amended and restated bylaws provide that the stockholders cannot amend many of the provisions described above except by a vote of 66 2/3% or more of our outstanding common stock.

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

## [Table of Contents](#)

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

### **Choice of Forum**

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the exclusive forum for:

- any derivative action or proceeding brought on 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 amended and restated certificate of incorporation, 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 amended and restated certificate of incorporation to be inapplicable or unenforceable in such action.

### **Transfer Agent and Registrar**

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A. The transfer agent's address is 144 Fernwood Avenue, Edison, NJ 08837.

### **Listing on the NASDAQ Global Market**

Our common stock is listed on the NASDAQ Global Market under the symbol "KMPH."

## PLAN OF DISTRIBUTION

We have entered into a sales agreement with Cowen, under which we may issue and sell from time to time up to \$50.0 million of our common stock through Cowen as our sales agent. This prospectus is only offering \$20.0 million in shares of our common stock. We will be required to file another prospectus supplement in the event we want to offer more than \$20.0 million in shares of our common stock in accordance with the sales agreement. Sales of our common stock, if any, will be made at market prices by any method that is deemed to be an “at the market” offering as defined in Rule 415 under the Securities Act, including sales made directly on the Exchange or any other trading market for our common stock, or sales other than on an exchange. If authorized by us in writing, Cowen may also sell our shares of common stock by any other method permitted by law, including negotiated transactions, and Cowen may also purchase shares of our common stock as principal.

Cowen will offer our common stock subject to the terms and conditions of the sales agreement on a daily basis or as otherwise agreed upon by us and Cowen. We will designate the maximum amount of common stock to be sold through Cowen on a daily basis or otherwise determine such maximum amount together with Cowen. Subject to the terms and conditions of the sales agreement, Cowen will use its commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold by us. We may instruct Cowen not to sell common stock if the sales cannot be effected at or above the price designated by us in any such instruction. Cowen or we may suspend the offering of our common stock being made through Cowen under the sales agreement upon proper notice to the other party. Cowen and we each have the right, by giving written notice as specified in the sales agreement, to terminate the sales agreement in each party’s sole discretion at any time.

The aggregate compensation payable to Cowen as sales agent equals up to 3.0% of the gross sales price of the shares sold through it pursuant to the sales agreement. In addition, we have agreed to reimburse Cowen for fees and disbursements related to its legal counsel in an amount not to exceed \$50,000, and for certain other expenses, including Cowen’s FINRA counsel fees in an amount up to \$10,000, which reimbursement is deemed by FINRA to be underwriting compensation. We estimate that the total expenses of the offering payable by us, excluding commissions payable to Cowen under the sales agreement, will be approximately \$300,000.

The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory, or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such common stock.

Cowen will provide written confirmation to us following the close of trading on the Exchange on each day in which common stock is sold through it as sales agent under the sales agreement. Each confirmation will include the number of shares of common stock sold through it as sales agent on that day, the volume weighted average price of the shares sold, the percentage of the daily trading volume and the net proceeds to us.

We will report at least quarterly the number of shares of common stock sold through Cowen under the sales agreement, the net proceeds to us and the compensation paid by us to Cowen in connection with the sales of common stock.

Settlement for sales of common stock will occur, unless the parties agree otherwise, on the third business day that is also a trading day following the date on which any sales were made in return for payment of the net proceeds to us. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

In connection with the sales of our common stock on our behalf, Cowen may be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation paid to Cowen may be deemed to be underwriting commissions or discounts. We have agreed in the sales agreement to provide indemnification and contribution to Cowen against certain liabilities, including liabilities under the Securities Act. As sales agent, Cowen will not engage in any transactions that stabilizes our common stock.

Our common stock is listed on the Exchange and trades under the symbol “KMPH.” The transfer agent of our common stock is Computershare Trust Company, N.A.

## [Table of Contents](#)

Cowen and/or its affiliates have provided, and may in the future provide, various investment banking and other financial services for us for which services they have received and, may in the future receive, customary fees.

### **LEGAL MATTERS**

The validity of the common stock offered by this prospectus will be passed upon by Cooley LLP, Broomfield, Colorado. Morgan, Lewis & Bockius, LLP, New York, New York is counsel for Cowen in connection with this offering.

### **EXPERTS**

The financial statements of KemPharm, Inc. appearing in KemPharm, Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2015 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon, included therein, and incorporated herein by reference. Such financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

### **WHERE YOU CAN FIND MORE INFORMATION**

This prospectus is part of a registration statement we filed with the SEC. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. You should rely only on the information contained in this prospectus or incorporated by reference. We have not authorized anyone else to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front page of this prospectus, regardless of the time of delivery of this prospectus or any sale of the securities offered by this prospectus.

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy the registration statement, as well as any other document filed by us with the SEC, at the SEC's Public Reference Room at 100 F Street NE, Washington, D.C. 20549. You can also request copies of these documents by writing to the SEC and paying a fee for the copying cost. You may obtain information on the operation of the Public Reference Room by calling the SEC at (800) SEC-0330. The SEC maintains a website that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC, including KemPharm. The address of the SEC website is [www.sec.gov](http://www.sec.gov).

We maintain a website at [www.kempharm.com](http://www.kempharm.com). Information contained in or accessible through our website does not constitute a part of this prospectus.

### **INCORPORATION OF CERTAIN INFORMATION BY REFERENCE**

The SEC allows us to "incorporate by reference" information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The SEC file number for the documents incorporated by reference in this prospectus is 001-36913. The documents incorporated by reference into this prospectus contain important information that you should read about us.

The following documents are incorporated by reference into this document:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2015 filed with the SEC on March 16, 2016;
- the information specifically incorporated by reference into our Annual Report on Form 10-K for the fiscal year ended December 31, 2015 from our definitive proxy statement on Schedule 14A (other than information furnished rather than filed) filed with the SEC on April 14, 2016;

## Table of Contents

- our Quarterly Reports on Form 10-Q filed with the SEC on May 13, 2016 and August 11, 2016;
- our Current Reports on Form 8-K (other than information furnished rather than filed) filed with the SEC on January 11, 2016, February 9, 2016, February 10, 2016, February 17, 2016, May 6, 2016, May 25, 2016, June 9, 2016, June 13, 2016, June 28, 2016, August 11, 2016, September 15, 2016, September 21, 2016 and October 3, 2016; and
- the description of our common stock, which is registered under Section 12 of the Exchange Act, in our registration statement on Form 8-A, filed with the SEC on April 10, 2015, including any amendments or reports filed for the purpose of updating such description.

We also incorporate by reference into this prospectus all documents (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) that are filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (i) after the date of the initial filing of the registration statement of which this prospectus forms a part and prior to effectiveness of the registration statement, or (ii) after the date of this prospectus but prior to the termination of the offering. These documents include periodic reports, such as Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as proxy statements.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, without charge upon written or oral request, a copy of any or all of the documents that are incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits that are specifically incorporated by reference into such documents. You should direct any requests for documents by writing us at 2656 Crosspark Road, Suite 100, Coralville, IA 52241 Attn: Corporate Secretary or telephoning us at (319) 665-2575.

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference into this document will be deemed to be modified or superseded for purposes of the document to the extent that a statement contained in this document or any other subsequently filed document that is deemed to be incorporated by reference into this document modifies or supersedes the statement.



**\$20,000,000**  
**Common Stock**

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**Prospectus**

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**Cowen and Company**

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**October 17, 2016**

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