Prospectus Supplement No. 12
(to Prospectus dated January 8, 2021)

Filed Pursuant to 424(b)(3)
Registration No. 333-250945

6,765,463 Shares of Common Stock
Warrants to Purchase up to 7,692,307 Shares of Common Stock
Pre-Funded Warrants to Purchase up to 926,844 Shares of Common Stock

This prospectus supplement updates and should be read in conjunction with the prospectus dated January 8, 2021, or the Prospectus, relating to the offering of up to 6,765,463 shares of our common stock, warrants to purchase up to 7,692,307 shares of our common stock and pre-funded warrants to purchase 926,844 shares of our common stock, as well as an option to the underwriter in the offering to purchase up to an additional 1,153,846 shares of common stock and/or warrants to purchase up to 1,153,846 shares of our common stock, in any combination thereof. To the extent that there is any conflict between the information contained herein and the information contained in the Prospectus, the information contained herein supersedes and replaces such information.

Current Report

This prospectus supplement incorporates into the Prospectus the information contained in our attached Current Report on Form 8-K that we filed with the Securities and Exchange Commission on July 21, 2021, or the Form 8-K. The Form 8-K, as filed, is set forth below.

The information contained in this Prospectus Supplement No. 12 supplements and supersedes, in relevant part, the information contained in the Prospectus, as amended and supplemented to date. This Prospectus Supplement No. 12 is incorporated by reference into, and should be read in conjunction with, the Prospectus, as amended and supplemented to date, and is not complete without, and may not be delivered or utilized except in connection with, the Prospectus, as amended and supplemented to date.

The Prospectus, together with Prospectus Supplement No.1, Prospectus Supplement No. 2, Prospectus Supplement No. 3, Prospectus Supplement No. 4, Prospectus Supplement No. 5, Prospectus Supplement No. 6, Prospectus Supplement No. 7, Prospectus Supplement No. 8, Prospectus Supplement No. 9, Prospectus Supplement No. 10, Prospectus Supplement No. 11 and Prospectus Supplement No. 12, constitutes the prospectus required to be delivered by Section 5(b) of the Securities Act of 1933, as amended, with respect to offers and sales of the securities as set forth in the Prospectus, as amended and supplemented. All references in the Prospectus to “this prospectus” are amended to read “this prospectus (as supplemented and amended to date).”

Our common stock is traded on the NASDAQ Capital Market under the symbol “KMPH.” The last reported sale price of our common stock on July 20, 2021 was $11.12 per share. You are urged to obtain current market quotations for our common stock.

Investing in our securities is highly speculative and involves a significant degree of risk. See “Risk Factors” beginning on page 9 of the Prospectus and the Risk Factors identified in our Annual Report for the year ended December 31, 2020 and in our Quarterly Report for the quarter ended March 31, 2021 for a discussion of information that should be considered before making a decision to purchase our securities.

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.

The date of this prospectus supplement is July 21, 2021.

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

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of Earliest Event Reported): July 21, 2021

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

Delaware	**001-36913**	**20-5894398**
(State or Other Jurisdiction of Incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**
1180 Celebration Boulevard, Suite 103, Celebration, FL		**34747**
(Address of Principal Executive Offices)		**(Zip Code)**

Registrant's Telephone Number, Including Area Code: (321) 939-3416

(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instructions A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock	KMPH	The Nasdaq Stock Market LLC (Nasdaq Capital Market)

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§ 230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§ 240.12b-2 of this chapter).

Emerging growth company ☐

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

Item 8.01 Other Events.

On July 21, 2021, KemPharm, Inc., a Delaware corporation (the "Company"), issued a press release (the "Press Release") announcing that the U.S. commercial launch of AZSTARYS™, a once-daily product for the treatment of attention deficit hyperactivity disorder ("ADHD") in patients age six years and older. Corium, Inc., a portfolio company of Gurnet Point Capital, is leading the commercialization of AZSTARYS in the U.S. The Press Release is filed, here within, as Exhibit 99.1 to this Current Report on Form 8-K.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	Description
99.1	Press Release titled "KemPharm Announces U.S. Launch of Innovative ADHD Treatment AZSTARYS™ (serdexmethylphenidate and dexmethylphenidate capsules) by Corium, Inc." dated July 21, 2021.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

KemPharm, Inc.

Date: July 21, 2021

By: /s/ R. LaDuane Clifton
R. LaDuane Clifton, CPA
Chief Financial Officer, Secretary and Treasurer

Exhibit 99.1

KemPharm Announces U.S. Launch of Innovative ADHD Treatment AZSTARYS™ (serdexmethylphenidate and dexmethylphenidate capsules) by Corium, Inc.

Celebration, FL – **July 21, 2021** – KemPharm, Inc. (NASDAQ: KMPH), a specialty pharmaceutical company engaged in the discovery and development of proprietary prodrugs, today announced the U.S. commercial launch of AZSTARYS™, a once-daily product for the treatment of attention deficit hyperactivity disorder (ADHD) in patients age six years and older. Corium, Inc. (Corium), a portfolio company of Gurnet Point Capital (GPC), is leading the commercialization of AZSTARYS in the U.S.

AZSTARYS was approved by the U.S. Food and Drug Administration (FDA) in March 2021 and consists of serdexmethylphenidate (SDX), KemPharm's prodrug of d-methylphenidate (d-MPH), co-formulated with immediate-release d-MPH. Subsequent to the approval of AZSTARYS, SDX was classified as a Schedule IV controlled substance by the U.S. Drug Enforcement Administration (DEA). AZSTARYS is classified as a Schedule II controlled substance as it includes a 70:30 mixture of SDX (Schedule IV) and d-MPH (Schedule II).

"The U.S. commercial launch of AZSTARYS is significant milestone for KemPharm and an important advancement in the treatment of ADHD, a disease indication that has seen little innovation in recent years," said Travis C. Mickle, Ph.D., President and CEO of KemPharm. "Since the FDA's approval of AZSTARYS in March, the various teams across Corium have been working diligently to ready AZSTARYS for its U.S. launch. We believe Corium has built a best-in-class commercial organization, and as a result, we expect the market potential for AZSTARYS will be maximized. It is great news that patients living with ADHD will now have a new treatment option with the potential to address previously unmet needs because of AZSTARYS' unique prodrug platform."

"The launch of AZSTARYS provides patients with ADHD, their caregivers, and their clinicians with a first-of-its-kind treatment that offers both rapid and extended ADHD symptom improvement because of the dual action of its formulation using the prodrug SDX with IR d-MPH," said Perry J. Sternberg, President and CEO of Corium. "We believe Corium's extensive ADHD and commercialization expertise will help ensure a successful AZSTARYS launch, and I am incredibly proud of our team for reaching this milestone, a significant inflection point in Corium's journey to become a leader in the CNS space."

Ann Childress, M.D., President of the Center for Psychiatry and Behavioral Medicine and an investigator in the AZSTARYS clinical trial, commented: "My decades of research in the ADHD space and treating patients with the condition has allowed me to be a firsthand witness to the evolution of ADHD drug development and implementation. Based on this perspective, I believe that AZSTARYS represents a true advance in ADHD medicine due to its unique combination of SDX, a prodrug of d-MPH, co-formulated with immediate release d-MPH, which provides both immediate release and consistent benefit throughout the course of the day. As a result, I believe AZSTARYS will soon become a drug of preference for physicians seeking to provide effective care for patients with ADHD."

About Attention Deficit Hyperactivity Disorder (ADHD):

Attention-deficit/hyperactivity disorder (ADHD) is one of the most common mental disorders affecting children. ADHD also affects many adults. Symptoms of ADHD include inattention (not being able to keep focus), hyperactivity (excess movement that is not fitting to the setting) and impulsivity (hasty acts that occur in the moment without thought).[1] An estimated 8.4% of children and 2.5% of adults have ADHD.[2][3]

The U.S. ADHD market accounted for approximately $17.5 billion of revenue in 2019 with a year-over-year prescription growth rate greater than four percent (4%). Within this, the branded portion of the ADHD market was approximately $7.4 billion in 2019, with extended-release products representing more than 95% of the branded prescriptions. In 2019, the methylphenidate segment of the ADHD market accounted for approximately 20 million prescriptions and $4.9 billion in sales.

About AZSTARYS:

AZSTARYS is an FDA-approved, once-daily product for the treatment of attention deficit hyperactivity disorder (ADHD) in patients age six years or older. AZSTARYS consists of SDX, KemPharm's prodrug of d-methylphenidate (d-MPH), co-formulated with immediate release d-MPH.

The complete approved prescribing information for AZSTARYS may be downloaded in PDF format here: https://kempharm.com/wp-content/uploads/2021/03/AZSTARYS-Master-Label-Final_20210302.pdf

About KemPharm:

KemPharm is a specialty pharmaceutical company focused on the discovery and development of proprietary prodrugs to treat serious medical conditions through its proprietary LAT® (Ligand Activated Therapy) technology. KemPharm utilizes its proprietary LAT® technology to generate improved prodrug versions of FDA-approved drugs as well as to generate prodrug versions of existing compounds that may have applications for new disease indications. KemPharm's prodrug product candidate pipeline is focused on the high need areas of attention deficit hyperactivity disorder, or ADHD, stimulant use disorder (SUD) and CNS rare diseases, including idiopathic hypersomnia (IH). KemPharm's lead clinical development candidate for the treatment of SUD, KP879, is based on its prodrug of d-methylphenidate, known as serdexmethylphenidate (SDX). In addition, KemPharm has received FDA approval for AZSTARYS, a new once-daily treatment for ADHD in patents age six years and older, and for APADAZ®, an immediate-release combination product containing benzhydrocodone, a prodrug of hydrocodone, and acetaminophen. For more information on KemPharm and its pipeline of prodrug product candidates visit www.kempharm.com or connect with us on Twitter, LinkedIn, Facebook and YouTube.

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[1] American Psychiatric Association (https://www.psychiatry.org/patients-families/adhd/what-is-adhd)
[2] Danielson, ML, et al. Prevalence of Parent-Reported ADHD Diagnosis and Associated Treatment Among U.S. Children and Adolescents, 2016. Journal of Clinical Child & Adolescent Psychology, Volume 47, 2018 - Issue 2
[3] Simon V , Czobor P, Bálint S , et al: :Prevalence and correlates of adult attention-deficit hyperactivity disorder: a meta-analysis. Br J Psychiatry194(3):204–211, 2009

Caution Concerning Forward Looking Statements:

This press release may contain forward-looking statements made in reliance upon the safe harbor provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Forward-looking statements include all statements that do not relate solely to historical or current facts and can be identified by the use of words such as “may,” “will,” “expect,” “project,” “estimate,” “anticipate,” “plan,” “believe,” “potential,” “should,” “continue” or the negative versions of those words or other comparable words. Forward-looking statements are not guarantees of future actions or performance. These forward-looking statements, including the potential benefits of AZSTARYS, the potential commercial success of AZSTARYS, and AZSTARYS becoming a drug of preference for physicians treating patients with ADHD, are based on information currently available to KemPharm and its current plans or expectations and are subject to a number of uncertainties and risks that could significantly affect current plans. Risks concerning KemPharm’s business are described in detail in KemPharm’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2021, and KemPharm’s other filings with the Securities and Exchange Commission. KemPharm is under no obligation to, and expressly disclaims any such obligation to, update or alter its forward-looking statements, whether as a result of new information, future events or otherwise.

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