



**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**

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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 December 20, 2021, or the Form 8-K. The Form 8-K, as filed, is set forth below.

The information contained in this Prospectus Supplement No. 20 supplements and supersedes, in relevant part, the information contained in the Prospectus, as amended and supplemented to date. This Prospectus Supplement No. 20 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, Prospectus Supplement No. 12, Prospectus Supplement No. 13, Prospectus Supplement No. 14, Prospectus Supplement No. 15, Prospectus Supplement No. 16, Prospectus Supplement No. 17, Prospectus Supplement No. 18, Prospectus Supplement No. 19 and Prospectus Supplement No. 20, 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 Global Select Market under the symbol “KMPH.” The last reported sale price of our common stock on December 17, 2021 was \$7.78 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 September 30, 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.**

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**The date of this prospectus supplement is December 20, 2021.**

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**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): December 20, 2021

**KemPharm, Inc.**

(Exact Name of Registrant as Specified in Its Charter)

Delaware  
(State or Other Jurisdiction of Incorporation)

001-36913  
(Commission File Number)

20-5894398  
(IRS Employer Identification No.)

1180 Celebration Boulevard, Suite 103,  
Celebration, FL  
(Address of Principal Executive Offices)

34747  
(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 Global Select 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 December 20, 2021, KemPharm, Inc. (the "Company") announced that its Board of Directors approved a share repurchase program pursuant to which the Company may repurchase up to \$50 million of shares of its common stock through December 31, 2023. Repurchases will be made in compliance with Rule 10b-18 of the Securities Exchange Act of 1934, as amended, subject to a variety of factors, including the market price of the Company's common stock, general market and economic conditions and applicable legal requirements. The exact number of shares to be repurchased by the Company is not guaranteed and the program may be suspended, modified, or discontinued at any time without prior notice.

\* \* \*

This Current Report on Form 8-K contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended. The Company cautions you that statements in this report that are not a description of historical facts are forward-looking statements. These statements are based on the Company's current beliefs and expectations. These forward-looking statements include statements regarding the Company's plans with respect to share repurchases. The inclusion of forward-looking statements should not be regarded as a representation by the Company that any of its plans will be achieved. Actual results may differ from those set forth in this report due to the risk and uncertainties inherent in our business, including, without limitation, market conditions, the possibility that the share repurchase program may be suspended or discontinued at any time, and other risks described in our filings with the Securities and Exchange Commission (the "SEC"), including under the heading "Risk Factors" in our Annual Report on Form 10-K and any subsequent filings with the SEC. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof, and we undertake no obligation to revise or update this report to reflect events or circumstances after the date hereof. All forward-looking statements are qualified in their entirety by this cautionary statement, which is made under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

**Item 9.01 Financial Statements and Exhibits.**

(d) Exhibits

<b>Exhibit No.</b>	<b>Description</b>
99.1	<u>Press Release titled "KemPharm, Inc. Announces Authorization of \$50 Million Share Repurchase Program" dated December 20, 2021.</u>
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

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## 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: December 20, 2021

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

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## **KemPharm, Inc. Announces Authorization of \$50 Million Share Repurchase Program**

**Celebration, FL – December 20, 2021** – KemPharm, Inc. (NasdaqGS: KMPH), a specialty pharmaceutical company focused on the discovery and development of proprietary prodrugs, announced today its Board of Directors has authorized a program to repurchase up to \$50 million of the Company’s outstanding stock. The share repurchase authorization is effective immediately and valid through December 31, 2023. This program is equivalent to approximately 18 percent of KemPharm’s current market capitalization.

“The Board’s decision to establish this share repurchase program reflects the positive momentum underway across all elements of our business, including our outlook for the ongoing commercialization of AZSTARYS®, our strong balance sheet, and the expectations we have for 2022 and beyond, coupled with the strong belief that our shares are currently undervalued,” said Travis Mickle, Ph.D., President and Chief Executive Officer of KemPharm. “We will continue our efforts to create value for our shareholders by continuing to prioritize capital allocation initiatives that support our growth strategies, including the advancement of our serdexmethylphenidate (SDX) pipeline and the exploration of other opportunities to expand our product pipeline.”

The shares may be repurchased from time to time in open market transactions, through privately negotiated transactions or by other means in accordance with federal securities laws. The Company intends to fund repurchases from available working capital and cash provided by operating activities. The timing, as well as the number and value of shares repurchased under the program, will be determined by the Company at its discretion and will depend on a variety of factors, including the market price of the Company’s common stock, general market and economic conditions and applicable legal requirements. The exact number of shares to be repurchased by the Company is not guaranteed and the program may be suspended, modified, or discontinued at any time without prior notice. Any repurchases will be made in compliance with the SEC’s Rule 10b-18.

### **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. Corium, Inc., a portfolio company of Gurnet Point Capital, is leading all commercialization efforts for AZSTARYS in the U.S.

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](https://kempharm.com/wp-content/uploads/2021/03/AZSTARYS-Master-Label-Final_20210302.pdf)

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## **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, and the recipient of the 2021 David J. Gury Company of the Year award presented by BioFlorida. 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). In addition, the U.S. Food and Drug Administration (FDA) has approved AZSTARYS®, a new once-daily treatment for ADHD in patents age six years and older containing KemPharm's prodrug, serdexmethylphenidate (SDX), and APADAZ®, an immediate-release combination product containing benzhydrocodone, KemPharm's prodrug of hydrocodone, and acetaminophen. For more information on KemPharm and its pipeline of prodrug product candidates visit [www.kempharm.com](http://www.kempharm.com) or connect with us on [Twitter](#), [LinkedIn](#), [Facebook](#) and [YouTube](#).

## **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, include plans with respect to share repurchases, the strength of KemPharm's balance sheet, outlook for the ongoing commercialization of AZSTARYS®, and the potential to create additional value for shareholders. These forward-looking statements 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, including market conditions and the possibility that the share repurchase program may be suspended or discontinued at any time. Risks concerning KemPharm's business are described in detail in KemPharm's Quarterly Report on Form 10-Q for the quarter ended September 30, 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.

## **KemPharm Contacts:**

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