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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

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**POST-EFFECTIVE AMENDMENT NO.3 TO  
FORM S-1  
ON FORM S-3  
REGISTRATION STATEMENT  
UNDER  
THE SECURITIES ACT OF 1933**

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**KEMPHARM, INC.**

(Exact name of registrant as specified in its charter)

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**Delaware**  
(State or other jurisdiction of  
incorporation or organization)

**20-5894398**  
(I.R.S. Employer  
Identification Number)

**1180 Celebration Boulevard, Suite 103  
Celebration, FL 34747  
(321) 939-3416**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**TRAVIS C. MICKLE, PH.D.  
President and Chief Executive Officer  
KemPharm, Inc.  
1180 Celebration Boulevard, Suite 103  
Celebration, FL 34747  
(321) 939-3416**

(Address, including zip code, and telephone number, including area code, of agent for service)

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**Copies to:**

**Cheston J. Larson, Esq.  
Nathan Ajiashvili, Esq.  
Latham & Watkins LLP  
12670 High Bluff Drive  
San Diego, California 92130  
(858) 523-5400**

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**APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC:** From time to time after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective on filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for comply with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of Securities Act.

**This post-effective amendment shall become effective upon filing with the Securities and Exchange Commission in accordance with Rule 462(d) under the Securities Act of 1933, as amended.**

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## EXPLANATORY NOTE

This Post-Effective Amendment No. 3 to Form S-1 on Form S-3 (this “**Amendment**”) relates to the Registrant’s Registration Statement on Form S-1 (File No. 333-220981), as amended, declared effective on January 7, 2021 by the Securities and Exchange Commission. The Registrant is filing this Amendment for the sole purpose of replacing Exhibit 5.1 and Exhibit 23.1 to the Registration Statement. This Amendment does not modify any provision of Part I or Part II of the Registration Statement other than Item 16(a) of Part II as set forth below.

**PART II**  
**INFORMATION NOT REQUIRED IN PROSPECTUS**

**Item 16. Exhibits**

<u>Exhibit Number</u>	<u>Description</u>
5.1	<a href="#"><u>Opinion of Cooley LLP (incorporated by reference to Exhibit 5.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-251947) filed on January 7, 2021).</u></a>
23.1	<a href="#"><u>Consent of Cooley LLP (included in Exhibit 5.1).</u></a>
24.1	<a href="#"><u>Powers of Attorney (incorporated on the signature page to the initial registration statement).</u></a>
24.2	<a href="#"><u>Power of Attorney of Tamara A. Seymour (incorporated on the signature page to the Amendment to Form S-1 on Form S-3 (File No. 333-250945) filed on January 25, 2022).</u></a>

