

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

**FORM S-3
REGISTRATION STATEMENT**
*Under
The Securities Act Of 1933*

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

Delaware
(State or Other Jurisdiction of
Incorporation or Organization)

46-5087339
(I.R.S. Employer
Identification Number)

**2450 Holcombe Blvd., Suite X
Houston, TX 77021
(832) 834-6992**

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

**Mark J. Rosenblum
Chief Financial Officer
Salarius Pharmaceuticals, Inc.
2450 Holcombe Blvd., Suite X
Houston, TX 77021
(832) 834-6992**

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

Copies to:

**Andrew L. Strong
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Houston, TX 77010
(713) 276-7677**

From time to time after this registration statement becomes effective, as determined by market conditions and other factors.
(Approximate date of commencement of proposed sale to the public)

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 upon 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, a 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
Non-accelerated filer

Accelerated Filer
Smaller reporting company
Emerging growth company

X

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 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price Per Share(2)	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, \$0.0001 par value per share, issuable upon exercise of warrants	3,964,065	\$1.15	\$4,558,674.75	\$497.35

- (1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement also covers any additional securities that may be offered or issued in connection with any stock split, stock dividend or pursuant to anti-dilution provisions of any of the securities.
- (2) Estimated solely for purposes of calculating the registration fee pursuant to Rule 457(c) under the Securities Act and based upon the average of the high and low prices on the Nasdaq Capital Market on January 13, 2021.

The Registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. The selling stockholders identified herein may not sell these securities until the registration statement filed with Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED January 15, 2021

PROSPECTUS



Salaris Pharmaceuticals, Inc.

3,964,065 shares of Common Stock

This prospectus relates to the possible resale by the selling stockholders named in this prospectus of an aggregate of up to 3,964,065 shares of common stock of Salaris Pharmaceuticals, Inc., issuable upon exercise of certain outstanding common stock purchase warrants, issued by us. We are not selling any shares of common stock under this prospectus and will not receive any proceeds from the sale of the shares offered by this prospectus.

We have agreed to bear all of the expenses incurred in connection with the registration of these shares. The selling stockholders will pay or assume brokerage commissions and similar charges incurred for the sale of shares of our common stock.

The selling stockholders identified in this prospectus, or their respective pledgees, donees, transferees or other successors-in-interest, may offer the shares from time to time through public or private transactions at prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices. See "Plan of Distribution" beginning on page 10.

Our common stock is listed on the Nasdaq Capital Market under the symbol "SLRX." On January 14, 2021, the last reported sale price of our common stock on the Nasdaq Capital Market was \$1.16 per share.

Investing in our securities involves risks. See the section entitled "[Risk Factors](#)" included in or incorporated by reference into the accompanying prospectus supplement and in the documents we incorporate by reference in this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2021

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ABOUT THIS PROSPECTUS

This prospectus relates to the resale by the selling stockholders of up to 3,964,065 shares of common stock issuable upon exercise of certain warrants held by the selling stockholders named herein (“Warrants”), as described below under “Selling Stockholders.” We are not selling any shares of common stock under this prospectus, and will not receive any proceeds from the sale of shares of common stock by the selling stockholders, except with respect to amount received by us upon the exercise of the Warrants for cash.

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC. It omits some of the information contained in the registration statement and reference is made to the registration statement for further information with regard to us and the shares of our common stock being offered by the selling stockholders. You should review the information and exhibits in the registration statement for further information about us and the shares of our common stock being offered hereby. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to the filings. You should review the complete document to evaluate these statements. You should read this prospectus, any documents that we incorporate by reference in this prospectus and the additional information described under the headings “Where You Can Find More Information,” and “Incorporation by Reference,” before making your investment decision. You should not assume that the information in this prospectus or any documents we incorporate by reference herein is accurate as of any date other than the date on the front of such document. Our business, financial condition, results of operations and prospects may have changed since those dates. You should rely only on the information contained or incorporated by reference in this prospectus filed with the SEC. We have not authorized anyone to provide you with different information and, if you are given any information or representation about these matters that is not contained or incorporated by reference in this prospectus, you must not rely on that information.

All references in this prospectus supplement to “Salarius,” the “Company,” “we,” “us” and “our” refer Salarius Pharmaceuticals, Inc. and its consolidated subsidiaries, except where the context otherwise requires or as otherwise indicated.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents we have filed with the SEC that are incorporated by reference in this prospectus contain forward-looking statements that involve risks and uncertainties. These statements relate to future periods, future events or our future operating or financial plans or performance. All statements other than statements of fact, including statements identified by words such as “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “plan,” “intend,” “expect,” and similar expressions are forward-looking statements, and include but are not limited to the following:

- our ability to successfully initiate and complete clinical trials and regulatory submissions;
- expected dose escalation and dose expansion;
- expected number of additional clinical sites;
- expected cohort readouts;
- expected therapeutic options for SP-2577 and related effects;
- timing of development and future milestones;
- the development, expected timeline, and commercial potential of any product candidates;
- the effect of changes in macroeconomic factors beyond our control;
- competition in the markets in which we do business and our competitive advantages;
- our beliefs regarding our prospects for our business;
- the adequacy of our capital resources and our ability to raise additional financing and the effect of failing to obtain adequate funding;
- our ability to compete;
- our beliefs regarding the attributes and anticipated customer benefits of our products;
- our ability to hire additional personnel and retain key personnel;
- our ability to expand and improve our sales performance and marketing activities;

- our ability to manage our expenditures and estimate future expenses, revenue, and operational requirements;
- our use of proceeds;
- the effect of changes to management judgments and estimates;
- the impact of any modification to our pricing practices in the future;
- our beliefs regarding our international operations;
- our ability to take adequate precautions against claims or lawsuits made by third parties, including alleged infringement of proprietary rights;
- the potential impact of foreign currency exchange rate fluctuations;
- our expected quarterly cash expenditures;
- the impact of accounting pronouncements and our critical accounting policies, judgments, estimates, models, and assumptions on our financial results; and
- our expectations with respect to revenue, cost of revenue, expenses, and other financial metrics.

We have based these forward-looking statements on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, strategy, short- and long-term business operations and objectives, and financial requirements. These statements are subject to known and unknown risks, uncertainties and assumptions that could cause actual results to differ materially from those projected or otherwise implied by the forward-looking statements, including the following: risks and uncertainties associated with our ability to manage our business plans, strategies, and outlooks and any business-related forecasts or projections; the availability of sufficient resources to meet our business objectives and operational requirements; the ability to project future cash utilization and reserves needed for contingent future liabilities and business operations; the fact that the results of earlier studies and trials may not be predictive of future clinical trial results; the ability to protect our intellectual property rights; risks related to the drug development and the regulatory approval process; the impact of competitive products and technological changes; the impact of new legislation or regulations, or of judicial decisions, on our business; legal and regulatory uncertainties; our ability to compete against third parties; the economic environment; our ability to manage future growth; the market price of our common stock; and foreign currency exchange rate fluctuations. You should not place undue reliance on these forward-looking statements.

We discuss in greater detail, and incorporate by reference into this prospectus and the accompanying prospectus, many of these risks, uncertainties and assumptions under the heading “Risk Factors.” Additional cautionary statements or discussions of risks, uncertainties, and assumptions that could affect our results or the achievement of the expectations described in forward-looking statements are also contained in the documents we incorporate by reference into this prospectus. Any forward-looking statement made by us in this prospectus, or any of the documents incorporated by reference in this prospectus speaks only as of the date on which it was made. We expressly disclaim any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in our expectations with regard thereto or any change in events, conditions, or circumstances on which any such statement is based. You should, however, review additional disclosures we make in our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K filed with the SEC.

You should read this prospectus and the documents that we incorporated by reference in this prospectus completely and with the understanding that our actual future results, levels of activity, and performance as well as other events and circumstances may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

PROSPECTUS SUMMARY

This summary highlights important features of this offering and the information included or incorporated by reference in this prospectus. This summary may not contain all of the information that is important to you. You should read the entire prospectus carefully, including "Risk Factors," before deciding to invest in our common stock.

Salarius Pharmaceuticals, Inc.

We are a clinical-stage biopharmaceutical company focused on developing effective treatments for cancers with high, unmet medical need. Specifically, we are developing treatments for cancers caused by dysregulated gene expression, i.e., genes are incorrectly turned on or off. The field concerned with gene expression regulation is called 'epigenetics'. As cancers are often diseases driven by gene dysregulation, epigenetics is an area of interest for cancer treatment. Our lead epigenetic based technology, seclidemstat ("SP-2577"), may treat cancers by restoring correct gene expression.

SP-2577, which we call seclidemstat, was licensed from the University of Utah Research Foundation in 2011. SP-2577 is a small molecule that inhibits the epigenetic enzyme lysine specific demethylase 1 ("LSD1"). LSD1's enzymatic activity can cause genes to turn on or off and thereby affect the cell's gene expression and overall activity. In addition, LSD1 can act via its scaffolding properties (protein-protein interactions), independently of its enzymatic function, to alter gene expression and modulate cell fate. In healthy cells, LSD1 is necessary for stem cell maintenance and normal cell development processes. However, in several cancers LSD1 is highly expressed and acts to incorrectly silence or activate genes leading to disease progression. High levels of LSD1 expression are often associated with aggressive cancer phenotypes and poor patient prognosis. Hence, development of targeted LSD1 inhibitors is of interest for the treatment of various cancers. SP-2577 uses a novel, reversible mechanism to effectively inhibit LSD1's enzymatic and scaffolding properties and thereby treat and prevent cancer progression.

Our first indication of interest for SP-2577 is a devastating bone and soft-tissue cancer called Ewing sarcoma. Ewing sarcoma mostly afflicts adolescents and young adults, with the median age of diagnosis being 15. The most commonly expressed fusion oncoprotein in Ewing sarcoma is the EWS-FLI fusion protein, which is present in approximately 85% of Ewing sarcoma cases. The LSD1 enzyme associates with EWS-FLI (and other E26 Transformation-Specific ("ETS") fusion proteins) and is thought to promote tumor growth. We believe the SP-2577 molecule helps inhibit EWS-FLI activity by disrupting EWS-FLI from associating with LSD1 and other proteins that are necessary for its cancer promoting activity. Therefore, we believe that SP-2577 can potentially reverse the cancer promotion gene expression and thereby possibly prevent Ewing sarcoma tumor growth and promote cancer cell death. Preclinical studies of SP-2577 in certain Ewing sarcoma animal models showed a significant tumor reduction as well as a significant survival benefit compared to untreated animals. Our ongoing Phase 1/2 clinical trial is designed as a single agent dose escalation followed by a dose expansion study. The trial can enroll up to 50 relapsed or refractory Ewing sarcoma patients. The primary objectives of the study are to assess the safety and tolerability of SP-2577. Secondary objectives include assessing preliminary efficacy of SP-2577. We recently announced that we plan to amend the Ewing sarcoma trial to also include up to 30 Ewing-related sarcoma patients upon reaching the dose expansion phase.

As LSD1 can interact with over 60 regulatory proteins other than EWS-FLI, we believe that LSD1 may also play a critical role in progression of various other cancer types. These include both solid tumors and hematologic malignancies. In the second quarter of 2019, we initiated a second company-sponsored Phase 1/2 trial to study SP-2577 in Advanced Solid Tumors. The Advanced Solid Tumor ("AST") trial is a single agent dose escalation, dose expansion study enrolling patients with advanced malignancies, excluding Ewing sarcoma or central nervous system tumors. In addition, we are conducting preclinical work with SP-2577 for use in hematologic cancers.

Recent data from "LSD1 Ablation Stimulates Anti-tumor Immunity and Enables Checkpoint Blockade" by W. Sheng, et al. and "Inhibition of Histone Lysine-specific Demethylase 1 Elicits Breast Tumor Immunity and Enhances Antitumor Efficacy of Immune Checkpoint Blockade" by Y. Qin, et al. suggests that LSD1 plays a role in tumor immune activity and can sensitize tumors to checkpoint inhibitors. These recent works have sparked interest in combining LSD1 inhibitors with checkpoint inhibitors. We are conducting preclinical work with SP-2577 in this area.

We have no products approved for commercial sale and have not generated any revenue from product sales. We have never been profitable and have incurred operating losses in each year since inception. We had an accumulated deficit of \$17,661,406 as of September 30, 2020. Substantially all of our operating losses resulted from expenses incurred in connection with our research and development programs and from general and administrative costs associated with our operations.

Our financial statements are prepared using Generally Accepted Accounting Principles in the United States of America (“GAAP”) applicable to a going concern, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. Our financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts and classification of liabilities should we be unable to continue as a going concern.

We expect to continue to incur significant expenses and increasing operating losses for at least the next several years as we initiate and continue the clinical development of, and seek regulatory approval for, our product candidates, add personnel necessary to continue to operate as a public company upon closing of the merger, and work to develop an advanced clinical pipeline of product candidates. We expect that our operating losses will fluctuate significantly from quarter-to-quarter and year-to-year due to timing of clinical development programs and efforts to achieve regulatory approval.

As of September 30, 2020, the Cancer Prevention and Research Institution of Texas (“CPRIT”) fund matching requirements had been fully met. As of September 30, 2020, we have received an aggregate of \$9.6 million from the CPRIT grant. A portion of the remaining \$9.1 million CPRIT grant was for a castration-resistant prostate study (approximately \$2.6 million). The Company has elected not to pursue this study, and accordingly this amount will no longer be available. The Company was approved for an extension with a contract end date of May 31, 2021.

We believe that our \$9.6 million in cash and cash equivalents on hand as of September 30, 2020, and the expected CPRIT funds available are sufficient to fund our anticipated operating and capital requirements into the second half of 2021, however, we will continue to require substantial additional capital to continue our clinical development activities. Accordingly, we will need to raise substantial additional capital to continue to fund our operations as a whole. The amount and timing of our future funding requirements will depend on many factors, including the pace and results of our development, regulatory and commercialization efforts. Failure to raise capital as and when needed, on favorable terms or at all, would have a negative impact on our financial condition and our ability to develop and commercialize our product candidates and to fund our operations.

We intend, when required, to obtain additional capital through the sale of equity securities in one or more offerings or through issuances of debt instruments. We may also consider new collaborations or selectively partnering our technology. However, we cannot provide any assurance that we will be successful in accomplishing any of our plans to obtain additional capital or be able to do so on favorable terms or on terms acceptable to us.

Corporate Information

We were incorporated as Flex Pharma, Inc. (“Flex Pharma”) in Delaware in February 2014. In July 2019, our wholly owned subsidiary, Falcon Acquisition Sub, LLC, merged with and into Salarius Pharmaceuticals, LLC (“Private Salarius”), with Private Salarius becoming our wholly owned subsidiary (the “Merger”), and we changed our name to Salarius Pharmaceuticals, Inc. Our principal executive offices are located at 2450 Holcombe Blvd., Suite X, Houston, TX 77021, and our telephone number is (832) 834-6992. Our website address is www.saliariuspharma.com. We do not incorporate the information on, or accessible through, our website into this prospectus, and you should not consider any information on, or accessible through, our website as part of this prospectus.

The Merger is deemed to be a reverse acquisition under the guidance of ASC 805 and, as such, Private Salarius has been determined to be the accounting acquirer in the Merger, but not the legal acquirer. As a result, upon consummation of the Merger, the historical financial statements of Private Salarius became the historical financial statements of Salarius, the combined company.

THE OFFERING

Securities offered by the selling stockholders	3,964,065 shares of our common stock issuable upon exercise of the Warrants.
Common stock outstanding immediately prior to this offering	23,808,546 shares.
Terms of the offering	The selling stockholders will determine when and how they will sell the common stock offered in this prospectus, as described in “Plan of Distribution.”
Use of proceeds	We will not receive any proceeds from the sale of the shares of common stock covered by this prospectus.
Risk factors	See “Risk Factors” beginning on page 6, for a discussion of factors you should carefully consider before deciding to invest in our common stock.
Nasdaq Capital Market symbol	Our common stock is listed on the Nasdaq Capital Market under the symbol “SLRX.” On January 14, 2020, the last reported sale price of our common stock on the Nasdaq Capital Market was \$1.16 per share.

RISK FACTORS

Investing in our securities involves risk. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed under the heading “Risk Factors” included in or incorporated by reference into the applicable prospectus supplement together with all of the other information contained in the prospectus supplement or appearing in or incorporated by reference into this prospectus, including the risk factors incorporated by reference to our most recent Annual Report on Form 10-K, any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K, and any amendments made thereto. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities.

USE OF PROCEEDS

We will not receive any proceeds from the sale of the shares offered pursuant to this prospectus. The selling stockholders will receive all of the proceeds from the sale of the shares of common stock offered by this prospectus. For information about the selling stockholders, see "Selling Stockholders." Assuming all of the Warrants are exercised for 3,964,065 shares of common stock by payment of cash, we will receive aggregate gross proceeds of approximately \$3.6 million.

The selling stockholders will pay any underwriting discounts and commissions and expenses incurred by the selling stockholders for brokerage, accounting, tax or legal services or any other expenses incurred by the selling stockholders in disposing of the shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including all registration and filing fees and fees and expenses of our counsel and accountants.

SELLING STOCKHOLDERS

We have prepared this prospectus to allow the selling stockholders or their pledgees, donees, transferees or other successors in interest, to offer for resale, from time to time, up to 3,964,065 shares of our common stock issuable to the selling stockholders upon exercise of the Warrants currently held by the respective selling stockholders.

On February 11, 2020, Salarius consummated a registered public offering of 7,101,307 Class A units and 1,246,519 Class B units. Each Class A unit consisted of one share of the Company's common stock and a five-year warrant to purchase one share of Common Stock at an exercise price of \$1.15 per share. Each Class B unit consisted of one share of the Company's Series A convertible preferred stock, par value \$0.0001 per share, and a warrant.

On December 11, 2020, the Company entered into warrant exercise inducement offer letters ("Inducement Letters") with the selling stockholders pursuant to which such holders agreed to exercise for cash, their Warrants to purchase 3,964,065 shares of common stock in exchange for the Company's agreement to (i) lower the exercise price of the Warrants held by the selling stockholders to \$0.90 and (ii) issue new warrants to purchase up to 3,964,065 shares of Common Stock. Each of the new warrants is exercisable at a price per share of \$1.182 and expires on June 11, 2026. The Company also agreed to file a registration statement covering the resale of the shares of common stock issued or issuable upon the exercise of the Warrants no later than 15 days following the date of the Inducement Letters.

The table below lists the selling stockholders and other information regarding the beneficial ownership of the common shares by each of the selling stockholders. The second column lists the number of common shares beneficially owned by each selling stockholder, based on its ownership of the common shares and warrants, as of January 12, 2021, assuming exercise of any warrants held by the selling stockholders on that date, without regard to any limitations on exercises. The third column lists the common shares being offered by this prospectus by the selling stockholders.

We do not know if, when or in what amounts the selling stockholders may offer their shares for sale. The selling stockholders may sell some, all or none of the shares offered by this prospectus. Because the number of shares the selling stockholders may offer and sell is not presently known, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of shares that will be held by each selling stockholder after completion of this offering.

Name of Selling Stockholder	Shares Beneficially Owned Prior to the Offering ⁽¹⁾		Maximum Number of Shares of Common Stock to be Offered Pursuant to this Prospectus	Shares Beneficially Owned After the Offering ⁽¹⁾⁽²⁾	
	Number	Percentage of Outstanding Common Stock		Number	Percentage of Outstanding Common Stock
Armistice Capital Master Fund Ltd. ⁽³⁾	999,999	4.2%	855,146	144,853	*
AIGH Investment Partners LP ⁽⁴⁾⁽⁷⁾	963,043	4.0%	876,087	86,956	*
WVP Emerging Manager Onshore Fund, LLC – AIGH Series ⁽⁵⁾⁽⁷⁾	265,564	1.1%	178,608	86,956	*
WVP Emerging Manager Onshore Fund, LLC – Optimized Equity Series ⁽⁶⁾⁽⁷⁾	162,695	*	75,739	86,956	*
Lincoln Park Capital Fund LLC ⁽⁸⁾	1,370,938	5.8%	804,347	566,591	2.4%
Alpha Capital Anstalt ⁽⁹⁾	671,104	2.8%	485,869	185,235	*
Hudson Bay Master Fund Ltd. ⁽¹⁰⁾	804,347	3.4%	688,269	116,078	*
TOTALS	5,237,690	21.3%	3,964,065	1,273,625	2.4%

* Less than 1%

- (1) For purposes of calculating beneficial ownership, we have assumed the exercise of any warrants held by the selling stockholders, without regard to any limitations on exercises and is otherwise determined in accordance with Rule 13d-3 under the Exchange Act. Under such rule, beneficial ownership includes any shares over which the selling stockholder has sole or shared voting power or investment power and any shares that the selling stockholder has the right to acquire within 60 days of such date through the exercise of any options or other rights. The percentage of shares beneficially owned is based on 23,808,546 shares of our common stock outstanding at the close of business on January 12, 2021.
- (2) Assumes that the selling stockholders dispose of all of the shares of common stock covered by this prospectus and do not acquire beneficial ownership of any additional shares.
- (3) Includes 999,999 shares of common stock issuable upon exercise of warrants held by Armistice Capital Master Fund Ltd., a Cayman Islands exempted company (the “Master Fund”), which are subject to certain beneficial ownership limitations. The shares are directly held by Master Fund and may be deemed to be indirectly beneficially owned by: (i) Armistice Capital, LLC (“Armistice Capital”), as the investment manager of the Master Fund; and (ii) Steven Boyd, as the Managing Member of Armistice Capital. Armistice Capital and Steven Boyd disclaim beneficial ownership of the securities except to the extent of their respective pecuniary interests therein.
- (4) Includes (i) 876,087 shares of common stock issuable upon exercise of warrants held by AIGH Investment Partners, L.P. (“AIGH IP LP”) and (ii) 86,956 shares of common stock issuable upon exercise of warrants held by AIGH Investment Partners LLC (“AIGH LLC”) all of which are subject to certain beneficial ownership limitations.
- (5) Includes (i) 178,608 shares of common stock issuable upon exercise of warrants held by WVP Emerging Manager Onshore Fund, LLC - AIGH Series (“WVP AIGH”) and (ii) 86,956 shares of common stock issuable upon exercise of warrants held by AIGH LLC all of which are subject to certain beneficial ownership limitations.
- (6) Includes (i) 75,739 shares of common stock issuable upon exercise of warrants held by WVP Emerging Manager Onshore Fund, LLC - Optimized Equity Series (“WVP OES”), and (ii) 86,956 shares of common stock issuable upon exercise of warrants held by AIGH LLC all of which are subject to certain beneficial ownership limitations.
- (7) Mr. Orin Hirschman is the managing member of AIGH Capital Management, LLC, a Maryland limited liability company (“AIGH CM”), who is an advisor or sub-advisor with respect to the securities held by AIGH IP LP, WVP AIGH, and WVP OES, and president of AIGH LLC. Mr. Hirschman has voting and investment control over the securities indirectly held by AIGH CM, directly by AIGH IP, AIGH LLC and Mr. Hirschman and his family directly. The address for AIGH CM, AIGH IP, AIGH LLC and Mr. Hirschman is 6006 Berkeley Avenue, Baltimore, Maryland 21209.
- (8) Includes (i) 599,591 shares of common stock and (ii) 804,347 shares of common stock issuable upon exercise of warrants held by Lincoln Park Capital Fund LLC which are subject to certain beneficial ownership limitations. Joshua Scheinfeld and Jonathan Cope, the principals of Lincoln Park are deemed to be beneficial owners of all the common stock owned by Lincoln Park. Messrs. Scheinfeld and Cope have shared voting power over the shares.
- (9) Includes (i) 185,235 shares of common stock and (ii) 485,869 shares of common stock issuable upon exercise of warrants held by Alpha Capital Anstalt which are subject to certain beneficial ownership limitations. Nicola Feuerstein has sole voting and dispositive power over the securities held for the account of this selling stockholder. The selling stockholder’s address is Lettstrasse 32, 9490 Vaduz, Principality of Liechtenstein.
- (10) Includes 804,347 shares of common stock issuable upon exercise of warrants held by Hudson Bay Master Fund Ltd. which are subject to certain beneficial ownership limitations. Hudson Bay Capital Management LP, the investment manager of Hudson Bay Master Fund Ltd., has voting and investment power over these securities. Sander Gerber is the managing member of Hudson Bay Capital GP LLC, which is the general partner of Hudson Bay Capital Management LP. Each of Hudson Bay Master Fund Ltd. and Sander Gerber disclaims beneficial ownership over these securities.

PLAN OF DISTRIBUTION

We are registering the shares of common stock issuable upon exercise of our outstanding Warrants to permit the resale of these shares of common stock by the selling stockholders after the date of this prospectus. We will not receive any of the proceeds from the sale by the selling stockholders of the shares of common stock, except with respect to amounts received by us upon the exercise of the Warrant for cash. We will bear all fees and expenses incident to our obligation to register the shares of common stock.

The selling stockholders may sell all or a portion of the shares of common stock held by it and offered hereby from time to time directly or through one or more underwriters, broker-dealers or agents. If the shares of common stock are sold through underwriters or broker-dealers, the selling stockholders will be responsible for underwriting discounts or commissions or agent's commissions. The shares of common stock may be sold in one or more transactions at fixed prices, at prevailing market prices at the time of the sale, at varying prices determined at the time of sale or at negotiated prices. These sales may be effected in transactions pursuant to one or more of the following methods:

- on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale;
- in the over-the-counter market;
- in transactions otherwise than on these exchanges or systems or in the over-the-counter market;
- through the writing or settlement of options, whether such options are listed on an options exchange or otherwise;
- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales made after the date the registration statement of which this prospectus forms a part is declared effective by the SEC;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The selling stockholders may also sell the shares of common stock under Rule 144 promulgated under the Securities Act, or any other exemption under the Securities Act, if available, rather than under this prospectus.

In connection with distributions of the shares or otherwise, each selling stockholder is permitted to enter into hedging transactions with broker-dealers or other financial institutions. In connection with such permitted transactions, broker-dealers or other financial institutions may engage in short sales of the common stock in the course of hedging the positions they assume with a selling stockholder. Each selling stockholder may also sell the common stock short and redeliver the shares to close out such permitted short positions. Each selling stockholder may also enter into option or other transactions with broker-dealers or other financial institutions that require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus, as supplemented or amended to reflect such transaction. Each selling stockholder may also pledge shares to a broker-dealer or other financial institution, and, upon a default, such broker-dealer or other financial institution, may effect sales of the pledged shares pursuant to this prospectus, as supplemented or amended to reflect such transaction.

In effecting sales, broker-dealers or agents engaged by a selling stockholder may arrange for other broker-dealers to participate. Broker-dealers or agents may receive commissions, discounts or concessions from the selling stockholder in amounts to be negotiated immediately prior to the sale.

In offering the shares covered by this prospectus, the selling stockholders and any broker-dealers who execute sales for the selling stockholders may be deemed “underwriters” within the meaning of the Securities Act in connection with such sales. Any profits realized by a selling stockholder and the compensation of any broker-dealers may be deemed to be underwriting discounts and commissions.

In order to comply with the securities laws of some states, if applicable, the shares must be sold in those states only through registered or licensed brokers or dealers. In addition, some states may restrict the selling stockholders from selling their respective shares unless such shares have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

The selling stockholders and any other person participating in such distribution will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including, without limitation, to the extent applicable, Regulation M of the Exchange Act, which may limit the timing of purchases and sales of any of the shares of common stock by the selling stockholders and any other participating person. To the extent applicable, Regulation M may also restrict the ability of any person engaged in the distribution of the shares of common stock to engage in market-making activities with respect to the shares of common stock. All of the foregoing may affect the marketability of the shares of common stock and the ability of any person or entity to engage in market-making activities with respect to the shares of common stock. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against some liabilities, including liabilities arising under the Securities Act.

There can be no assurance that the selling stockholders will sell any or all of the shares of common stock registered pursuant to the registration statement, of which this prospectus forms a part. Once sold under the registration statement, of which this prospectus forms a part, the shares of common stock will be freely tradable in the hands of persons other than our affiliates.

LEGAL MATTERS

The validity of any securities offered by this prospectus will be passed upon for us by Pillsbury Winthrop Shaw Pittman LLP, Houston, Texas.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2019, as set forth in their report, which is incorporated by reference in this prospectus supplement and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

The financial statements of Saliarius Pharmaceuticals, LLC, a Delaware limited liability company and a wholly owned subsidiary of Saliarius Pharmaceuticals, Inc. as of and for the year December 31, 2018 have been audited by Weaver and Tidwell, L.L.P., independent registered public accounting firm, as stated in their report dated March 25, 2019, except for the effects of the recast of equity to which the date is January 10, 2020 with respect to the audit of the balance sheet of Saliarius Pharmaceuticals, LLC as of December 31, 2018 and the related statements of operations, changes in stockholders' deficit and cash flows for the year ended December 31, 2018, which report appears in the December 31, 2019 annual report on Form 10-K of Saliarius Pharmaceuticals, Inc. and is incorporated by reference in this prospectus supplement and elsewhere in the registration statement. Such financial statements are incorporated by reference in reliance upon the reports of Weaver and Tidwell, L.L.P., and upon the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at www.sec.gov. Copies of certain information filed by us with the SEC are also available on our website at www.saliariuspharma.com. Our website is not a part of this prospectus and is not incorporated by reference in this prospectus. This prospectus is part of a registration statement we filed with the SEC. This prospectus omits some information contained in the registration statement in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information about us and the securities we are offering. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements.

INCORPORATION BY REFERENCE

The SEC permits us to "incorporate by reference" the information contained in documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents rather than by including them in this prospectus. Information that is incorporated by reference is considered to be part of this prospectus and you should read it with the same care that you read this prospectus. Later information that we file with the SEC will automatically update and supersede the information that is either contained, or incorporated by reference, in this prospectus, and will be considered to be a part of this prospectus from the date those documents are filed. We have filed with the SEC, and incorporate by reference in this prospectus:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2019, filed on [March 23, 2020](#);
- our Quarterly Report on Form 10-Q for the quarters ended March 31, 2020, June 30, 2020 and September 30, 2020, filed on [May 14, 2020](#) (as amended on [May 15, 2020](#)), [August 12, 2020](#) and [November 12, 2020, respectively](#);

- our Current Reports on Form 8-K filed on [February 12, 2020](#), [March 11, 2020](#), [April 10, 2020](#), [April 29, 2020](#), [June 18, 2020](#), [June 19, 2020](#), [July 29, 2020](#), [August 3, 2020](#), [October 6, 2020](#), and [December 11, 2020](#) (as amended on [December 11, 2020](#));
- the information contained in our definitive proxy statement on [Schedule 14A](#) filed on April 29, 2020 and incorporated by reference into Part III of our Annual Report on Form 10-K for the year ended December 31, 2019; and
- the description of our common stock contained in our Registration Statement on [Form 8-A](#) filed on January 23, 2015, including any amendment or report filed for the purpose of updating such description.

We are not, however, incorporating, in each case, any documents or information that we are deemed to furnish and not file in accordance with SEC rules.

We also incorporate by reference all additional documents that we file with the SEC under the terms of Section 13(a), 13(c), 14 or 15(d) of the Exchange Act that are made after the initial filing date of the registration statement of which this prospectus is a part and the effectiveness of the registration statement, as well as between the date of this prospectus and the termination of any offering of securities offered by this prospectus (excluding any portions thereof furnished by the Registrant, including but not limited to information furnished under Item 2.02 and Item 7.01 and any exhibits relating to Item 2.02 or Item 7.01 furnished under Item 9.01 of Form 8-K and any certification required by 18 U.S.C. § 1350).

Any statement contained in this Registration Statement or in a document incorporated by reference in this Registration Statement shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained in this Registration Statement or in any subsequently filed document that is deemed to be incorporated by reference in this Registration Statement modifies or supersedes such statement.

You may request a copy of any or all of the documents incorporated by reference but not delivered with this prospectus, at no cost, by writing or telephoning us at the following address and number: 2450 Holcombe Blvd., Suite X, Houston, TX 77021, and our telephone number is (832) 834-6992. We will not, however, send exhibits to those documents, unless the exhibits are specifically incorporated by reference in those documents.

We make available free of charge on our website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports, as soon as reasonably practicable after we electronically file or furnish such materials to the SEC. You may obtain a free copy of these reports in the Investor Relations section of our website, www.salariuspharma.com.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following is a statement of estimated expenses in connection with the issuance and distribution of the securities being registered, other than underwriting discounts and commissions.

SEC Registration Fee	\$ 500
Legal Fees and Expenses	\$ 25,000
Accounting Fees and Expenses	\$ 30,000
Miscellaneous Expenses	\$ 5,000
Total	\$ 60,500

Item 15. Indemnification of Directors and Officers.

We are incorporated under the laws of the State of Delaware. Section 145 of the DGCL provides that a Delaware corporation may indemnify any persons who were, are, or are threatened to be made, parties to any threatened, pending, or completed action, suit, or proceeding, whether civil, criminal, administrative, or investigative (other than an action by or in the right of such corporation), by reason of the fact that such person is or was an officer, director, employee, or agent of such corporation, or is or was serving at the request of such corporation as an officer, director, employee, or agent of another corporation, partnership, joint venture, trust, or other enterprise. The indemnity may include expenses (including attorneys' fees), judgments, fines, and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit, or proceeding, provided that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his or her conduct was illegal. A Delaware corporation may indemnify any persons who were, are, or are threatened to be made, a party to any threatened, pending, or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that such person is or was a director, officer, employee, or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee, or agent of another corporation, partnership, joint venture, trust, or other enterprise. The indemnity may include expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit provided such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests, except that no indemnification is permitted without judicial approval if such person is adjudged to be liable to the corporation. Where an officer or director is successful on the merits or otherwise in the defense of any action referred to above or in defense of any claim, issue, or matter therein, the corporation must indemnify him or her against the expenses (including attorneys' fees) actually and reasonably incurred.

Our amended and restated certificate of incorporation and amended and restated bylaws provide for the indemnification of our directors and officers to the fullest extent permitted under the DGCL.

Section 102(b)(7) of the DGCL permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duties as a director, except for liability for any:

- transaction from which the director derives an improper personal benefit;
- act or omission not in good faith or that involves intentional misconduct or knowing violation of law;
- unlawful payment of dividends or unlawful stock purchase or redemption; or
- breach of a director's duty of loyalty to the corporation or its stockholders.

Our amended and restated certificate of incorporation includes such a provision. Expenses incurred by any officer or director in defending any such action, suit, or proceeding in advance of its final disposition will be paid by us, provided, however, that if the DGCL requires, such advancement will be made only upon delivery to us of an undertaking, by or on behalf of such director or officer, to repay all amounts so advanced if it shall ultimately be determined that such director or officer is not entitled to be indemnified by us.

Section 174 of the DGCL provides, among other things, that in the case of any willful or negligent approval of an unlawful payment of dividends or an unlawful stock purchase or redemption, the directors under whose administration such violation happened may be held liable for such actions. A director who was either absent when the unlawful actions were approved or dissented at the time may avoid liability by causing his or her dissent to such actions to be entered in the books containing minutes of the meetings of the board of directors at the time such action occurred or immediately after such absent director receives notice of the unlawful acts.

As permitted by the DGCL, we have entered into, and continue to enter into, separate indemnity agreements with each of our directors and executive officers that require us to indemnify such persons against any and all costs and expenses (including attorneys', witness, or other professional fees) actually and reasonably incurred by such persons in connection with any action, suit, or proceeding (including derivative actions), whether actual or threatened, to which any such person may be made a party by reason of the fact that such person is or was a director or officer or is or was acting or serving as an officer, director, employee, or agent of ours or any of our affiliated enterprises. Under these agreements, we are not required to provide indemnification for certain matters, including:

- indemnification beyond that permitted by the DGCL;
- indemnification for any proceeding with respect to the unlawful payment of remuneration to the director or officer;
- indemnification for certain proceedings involving a final judgment that the director or officer is required to disgorge profits from the purchase or sale of our stock;
- indemnification for proceedings involving a final judgment that the director's or officer's conduct was in bad faith, knowingly fraudulent or deliberately dishonest or constituted willful misconduct or a breach of his or her duty of loyalty, but only to the extent of such specific determination;
- indemnification for proceedings or claims brought by an officer or director against us or any of our directors, officers, employees, or agents, except for (1) claims to establish a right of indemnification or proceedings, (2) claims approved by our board of directors, (3) claims required by law, (4) when there has been a change in control as defined in the indemnification agreement with each director or officer, or (5) by us in our sole discretion pursuant to the powers vested to us under the Delaware General Corporate Law;
- indemnification for settlements the director or officer enters into without our consent, provided there has been no change in control as defined in the indemnification agreement with each director and officer; or
- indemnification in violation of any undertaking required by the Securities Act, or in any registration statement we file.

The indemnification agreements also set forth certain procedures that will apply in the event of a claim for indemnification thereunder.

There is at present no pending litigation or proceeding involving any of our directors or executive officers as to which indemnification is required or permitted, and we are not currently aware of any threatened litigation or proceeding that may result in a claim for indemnification.

We have an insurance policy in place that covers our officers and directors with respect to certain liabilities, including liabilities arising under the Securities Act or otherwise.

Item 16. Exhibits.

The following exhibits are filed as part of, or incorporated by reference into this registration statement:

<u>Exhibit No.</u>	<u>Description</u>
4.1	Amended and Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 9, 2015).
4.2	Amended and Restated Bylaws of the Registrant, effective July 19, 2019 (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K filed with the SEC on July 22, 2019).
4.3	Form of Common Stock Certificate of Registrant (incorporated by reference to Exhibit 4.1 to the Registrant's registration statement on Form S-1 (File No. 33-201276), as amended, filed December 29, 2014, as amended).
4.4	Form of Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the SEC on December 11, 2020).
5.1*	Opinion of Pillsbury Winthrop Shaw Pittman LLP.
23.1*	Consent of Pillsbury Winthrop Shaw Pittman LLP (included in Exhibit 5.1).
23.2*	Consent of Ernst & Young LLP.
23.3*	Consent of Weaver and Tidwell, L.L.P.
24.1*	Power of Attorney (included on the signature page hereof).

* Filed herewith.

Item 17. Undertakings.

The undersigned Registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Securities and Exchange Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (i), (ii) and (iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Securities and Exchange Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(A) Each prospectus filed by the Registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(5) That, for the purposes of determining any liability under the Securities Act of 1933, each filing of the Registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the Registrant pursuant to any charter provision, by law or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification

is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized in Houston, Texas on January 15, 2021.

SALARIUS PHARMACEUTICALS, INC.

By: /s/ Mark J. Rosenblum
Mark J. Rosenblum
Executive Vice President and Chief Financial Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints David J. Arthur and Mark J. Rosenblum as his or her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments, including post-effective amendments, to this Registration Statement, and any registration statement relating to the offering covered by this Registration Statement and filed pursuant to Rule 462(b) under the Securities Act, and to file the same, with exhibits thereto and other documents in connection therewith, with the SEC, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully for all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney in fact and agent, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Name	Title	Date
<u>/s/ David J. Arthur</u> David J. Arthur	President and Chief Executive Officer and Director <i>(Principal Executive Officer)</i>	January 15, 2021
<u>/s/ Mark J. Rosenblum</u> Mark J. Rosenblum	Executive Vice President and Chief Financial Officer <i>(Principal Financial and Accounting Officer)</i>	January 15, 2021
<u>/s/ William K. McVicar</u> William K. McVicar	Chairman of the Board	January 15, 2021
<u>/s/ Tess Burleson</u> Tess Burleson	Director	January 15, 2021
<u>/s/ Arnold Hanish</u> Arnold Hanish	Director	January 15, 2021
<u>/s/ Paul Lammers</u> Paul Lammers	Director	January 15, 2021
<u>/s/ Bruce J. McCreedy</u> Bruce J. McCreedy	Director	January 15, 2021
<u>/s/ Jonathan Lieber</u> Jonathan Lieber	Director	January 15, 2021

PILLSBURY WINTHROP SHAW PITTMAN LLP
909 Fannin St. Suite 2000
Houston, TX 77010

January 15, 2021

Salarius Pharmaceuticals, Inc.
2450 Holcombe Blvd., Suite X
Houston, TX 77021

Ladies and Gentlemen:

We are acting as special counsel for Salarius Pharmaceuticals, Inc., a Delaware corporation (the “Company”), in connection with the Company’s Registration Statement on Form S-3 (the “Registration Statement”), including the prospectus included therein (the “Prospectus”), relating to the registration under the Securities Act of 1933 (the “Act”) of 3,964,065 shares of the Company’s common stock, par value \$0.0001 per shares (the “Common Stock”) that are issuable upon exercise of those outstanding common stock purchase warrants (the “Warrants”) issued by the Company pursuant to those certain Warrant Exercise Inducement Offer Letters entered into by the Company on December 11, 2020 with certain holders of the Company’s previously issued common stock warrants (the “Inducement Letters”). The Common Stock may be offered and sold by the selling stockholders named in the Registration Statement.

We have reviewed the Registration Statement, the Inducement Letters, the Warrants and such other agreements, documents, records, certificates and other materials, and have reviewed and are familiar with such corporate proceedings and satisfied ourselves as to such other matters, as we have considered relevant or necessary as a basis for the opinions expressed in this letter. In such review, we have assumed the accuracy and completeness of all agreements, documents, records, certificates and other materials submitted to us, the conformity with the originals of all such materials submitted to us as copies (whether or not certified and including facsimiles), the authenticity of the originals of such materials and all materials submitted to us as originals, the genuineness of all signatures and the legal capacity of all natural persons.

On the basis of the foregoing assumptions and subject to the qualifications and limitations set forth herein, we are of the opinion that the Board of Directors of the Company or a duly authorized committee thereof (the “Board”) has taken all necessary corporate action to approve the issuance and establish the terms of the offering of shares of the Common Stock and related matters and, when issued and delivered in accordance with the terms of the Warrants, such shares of Common Stock will be validly issued, fully paid and nonassessable.

In connection with the opinions expressed above, we have assumed that at the time of issuance of any shares of Common Stock upon exercise of any Warrant, the Company will have a sufficient number of authorized but unissued shares of Common Stock under its Amended and Restated Certificate of Incorporation at the time of such issuance.

The opinions set forth in this letter are limited to the law of the General Corporation Law of the State of Delaware as in effect on the date hereof.

We hereby consent to the filing of this opinion letter as Exhibit 5.1 to the Registration Statement and to the use of our name under the caption “Legal Matters” in the Registration Statement and in the Prospectus forming a part thereof and any supplement thereto. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ PILLSBURY WINTHROP SHAW PITTMAN LLP

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption "Experts" in the Registration Statement (Form S-3) and related Prospectus of Saliarius Pharmaceuticals, Inc. for the registration of 3,964,065 shares of its common stock and to the incorporation by reference therein of our report dated March 23, 2020, with respect to the consolidated financial statements of Saliarius Pharmaceuticals, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2019, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Houston, Texas
January 14, 2021

Consent of Independent Registered Public Accounting Firm

We consent to the use our report dated March 25, 2019, except for the effects of the recast of equity to which the date is January 10, 2020, with respect to the balance sheet of Salarius Pharmaceuticals, LLC as of December 31, 2018, the related statement of operations, changes in stockholders' deficit and cash flows for the year ended December 31, 2018, and the related notes, incorporated herein by reference to the Form 10-K of Salarius Pharmaceuticals, Inc. for the fiscal year ended December 31, 2019 dated March 23, 2020, and to the reference to our firm under the heading "Experts" in the prospectus.

/s/ WEAVER AND TIDWELL, L.L.P.

Houston, Texas
January 15, 2021