

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

FORM S-1
REGISTRATION STATEMENT
UNDER THE SECURITIES ACT OF 1933

DIFFUSION PHARMACEUTICALS INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

2834
(Primary Standard Industrial
Classification Code Number)

30-0645032
(I.R.S. Employer
Identification Number)

1317 Carlton Avenue, Suite 200
Charlottesville, VA 22902
(434) 220-0718

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

David G. Kalergis
Chief Executive Officer
1317 Carlton Avenue, Suite 200
Charlottesville, VA 22902
(434) 220-0718

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

With a Copy to:

David S. Rosenthal, Esq.
Dechert LLP
3 Bryant Park
1095 Avenue of the Americas
New York, New York 10036
(212) 698-3500

Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

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, as amended (the "Securities Act"), 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 post-effective amendment filed pursuant to Rule 462(d) 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.

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

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

CALCULATION OF REGISTRATION FEE

	Amount	Proposed maximum	Proposed maximum	Amount of
Title of each class of	To be	offering price	aggregate	registration
securities to be registered	Registered	per share	offering price ⁽¹⁾ (2)	fee
Common Stock, par value \$0.001 per share, underlying common stock purchase warrants	6,266,787 (2)	\$ 0.4335	\$ 2,716,652	\$ 352.62
Common stock issuable upon exercise of placement agent's warrants to purchase common stock (3)	313,339	\$ 0.6981	\$ 218,742	\$ 28.39
Total(4)	6,580,126	--	\$ 2,935,394	\$ 381.01

- (1) Estimated solely for the purpose of calculating the amount of the registration fee in accordance with Rule 457(g) under the Securities Act.
- (2) Represents a maximum of 6,266,787 shares of common stock, par value \$0.001 per share, of the registrant, issuable upon exercise of certain outstanding common stock purchase warrants at an exercise price of \$0.4335 per share, to be offered and sold by certain selling stockholders identified in this registration statement.
- (3) Represents a maximum of 313,339 shares of common stock issuable upon exercise of the placement agent's warrants, at an exercise price of \$0.6981.
- (4) Pursuant to Rule 416 under the Securities Act, the securities being registered hereunder include such indeterminate number of additional securities as may be issued after the date hereof as a result of stock splits, stock dividends or similar transactions.

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 that specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act or until the registration statement shall become effective on such date as the Securities and Exchange 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 may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy or sell these securities in any jurisdiction where the offer or sale is not permitted.

Subject to completion, dated December 20, 2019

PROSPECTUS

Diffusio₂n

Pharmaceuticals Inc.

**6,580,126 Shares of Common Stock
Issuable upon Exercise of Outstanding Warrants**

This prospectus relates to the resale, from time to time, by the selling stockholders identified in this prospectus under the caption “Selling Stockholders,” of up to 6,580,126 shares of our common stock, par value \$0.001 per share, issuable upon exercise of certain outstanding common stock purchase warrants. 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. We will receive proceeds from cash exercise of the warrants which, if exercised in cash with respect to all of the 6,580,126 shares of common stock, would result in gross proceeds of approximately \$2.9 million to us. The selling stockholders will bear all commissions and discounts, if any, attributable to the sale of the shares.

The selling stockholders may sell the shares of our common stock offered by this prospectus from time to time on terms to be determined at the time of sale through ordinary brokerage transactions or through any other means described in this prospectus under the caption “Plan of Distribution.” The shares of common stock may be sold at fixed prices, at market prices prevailing at the time of sale, at prices related to prevailing market price or at negotiated prices.

Our common stock is listed on The Nasdaq Capital Market under the symbol “DDFN.” On December 18, 2019, the last reported sale price of our common stock was \$0.40.

Investing in our common stock involves a high degree of risk. Before making an investment decision, please read “Risk Factors” on page 10 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2019.

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ABOUT THIS PROSPECTUS

This prospectus relates to the resale by the selling stockholders identified in this prospectus under the caption “Selling Stockholders,” from time to time, of up to 6,580,126 shares of our common stock, par value \$0.001 per share, issuable upon exercise of certain outstanding common stock purchase warrants. 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. However, we will receive proceeds from cash exercise of the common stock purchase warrants.

This prospectus is part of a registration statement on Form S-1 that we filed with the Securities and Exchange Commission (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 securities being offered by the selling stockholders. Any statement contained in the prospectus concerning the provisions of any document filed as an exhibit to the registration statement or otherwise filed with the SEC is not necessarily complete, and in each instance, reference is made to the copy of the document filed.

You should read this prospectus, any documents that we incorporate by reference in this prospectus and the additional information described below under “Where You Can Find Additional Information” and “Incorporation of Certain Information By Reference” before making an investment decision. You should rely only on the information contained or incorporated by reference in this prospectus. We have not authorized any other person to provide you with different information. If anyone provides you with additional, different or inconsistent information, you should not rely on it. We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in this prospectus were made solely for the benefit of the parties to such agreement, including in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

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 those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

Unless the context indicates otherwise, as used in this prospectus, the terms “Diffusion,” “the Company,” “we,” “us” and “our” refer to Diffusion Pharmaceuticals Inc., a Delaware corporation. We have registered trademarks for Diffusion and RestorGenex. All other trade names, trademarks and service marks appearing in this prospectus are the property of their respective owners. Use or display by us of other parties’ trademarks, trade dress or products is not intended to and does not imply a relationship with, or endorsements or sponsorship of, us by the trademark or trade dress owner.

FORWARD-LOOKING STATEMENTS

This prospectus, any accompanying prospectus supplement and the other information and documents incorporated by reference herein include forward-looking statements. We may, in some cases, use terms such as “believes,” “estimates,” “anticipates,” “expects,” “plans,” “intends,” “may,” “could,” “might,” “will,” “should,” “approximately” or other words that convey uncertainty of future events or outcomes to identify these forward-looking statements. Forward-looking statements appear in and are incorporated by reference into a number of places throughout this prospectus supplement and any accompanying prospectus supplement and include statements regarding our intentions, beliefs, projections, outlook, analyses or current expectations concerning, among other things, our ongoing and planned preclinical development and clinical trials, the timing of and our ability to make regulatory filings and obtain and maintain regulatory approvals for our product candidates, our intellectual property position, the degree of clinical utility of our products, particularly in specific patient populations, expectations regarding clinical trial data, our ability to commercialize our product candidates, our results of operations, cash needs, financial condition, liquidity, prospects, growth and strategies, the industry in which we operate and the trends that may affect the industry or us.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events, competitive dynamics and industry change, and depend on the economic circumstances that may or may not occur in the future or may occur on longer or shorter timelines than anticipated. Although we believe that we have a reasonable basis for each forward-looking statement contained in or incorporated by reference into this prospectus and any accompanying prospectus supplement, we caution you that forward-looking statements are not guarantees of future performance and that our actual results of operations, financial condition and liquidity, and the development of the industry in which we operate may differ materially from the forward-looking statements contained in and incorporated by reference into this prospectus any accompanying prospectus supplement. In addition, even if our results of operations, financial condition and liquidity, and the development of the industry in which we operate are consistent with the forward-looking statements contained in and incorporated by reference into this prospectus any accompanying prospectus supplement, they may not be predictive of results or developments in future periods.

Actual results could differ materially from our forward-looking statements due to a number of factors, including risks related to:

- our ability to obtain additional financing;
- our estimates regarding expenses, capital requirements and needs for additional financing;
- the success and timing of our preclinical studies and clinical trials;
- the difficulties in obtaining and maintaining regulatory approval of our products and product candidates, and the labeling under any approval we may obtain;
- our plans and ability to develop and commercialize our product candidates;
- our failure to recruit or retain key scientific or management personnel or to retain our executive officers;
- the accuracy of our estimates of the size and characteristics of the potential markets for our product candidates and our ability to serve those markets;
- regulatory developments in the United States and foreign countries;
- the rate and degree of market acceptance of any of our product candidates;
- obtaining and maintaining intellectual property protection for our product candidates and our proprietary technology;
- our ability to operate our business without infringing the intellectual property rights of others;
- recently enacted and future legislation regarding the healthcare system;

- our ability to satisfy the continued listing requirements of the Nasdaq Capital Market or any other exchange that our securities may trade on in the future;
- our ability to continue as a going concern;
- the success of competing products that are or may become available; and
- the performance of third parties, including contract research organizations and manufacturers.

You should also read carefully the factors described in the “Risk Factors” section contained in this prospectus and incorporated by reference herein from our Annual Report on Form 10-K for the fiscal year ended December 31, 2018, our Quarterly Reports on Form 10-Q and our other public filings to better understand the risks and uncertainties inherent in our business and underlying any forward-looking statements. As a result of these factors, we cannot assure you that the forward-looking statements contained in or incorporated by reference into this prospectus will prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all.

Any forward-looking statements that we make in or incorporate by reference into this prospectus speak only as of the date of such statement, and, except as required by applicable law, we undertake no obligation to update such statements to reflect events or circumstances after the date of this prospectus or to reflect the occurrence of unanticipated events. Comparisons of results for current and any prior periods are not intended to express any future trends or indications of future performance, unless expressed as such, and should only be viewed as historical data.

For all forward-looking statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995.

PROSPECTUS SUMMARY

The following summary highlights information contained elsewhere or incorporated by reference in this prospectus. This summary does not contain all of the information you should consider before investing in the securities. Before making an investment decision, you should read the entire prospectus carefully, including the matters discussed under the heading “Risk Factors” in this prospectus.

Diffusion Pharmaceuticals Inc.

Business Overview

We are a clinical stage biotechnology company developing new treatments for life threatening conditions by improving the body’s ability to bring oxygen to the areas where it is needed most. We are developing our lead product candidate, transcrocetinate sodium, also known as trans sodium crocetininate (“TSC”), for use in those life threatening conditions in which cellular oxygen deprivation (“hypoxia”) is the basis for significant unmet medical needs. TSC is designed to safely and selectively target and re-oxygenate the micro-environment of hypoxic cells, and can potentially be used in many indications, including stroke, oncology and cardiovascular disease. In stroke, TSC helps promote the diffusion of oxygen into those brain cells in which oxygen-deprivation causes neuronal death resulting in patient mortality or morbidity. In cancer, TSC re-oxygenates treatment-resistant cancerous tissue, making the cancer cells up to three times more susceptible to the therapeutic effects of standard-of-care radiation therapy and chemotherapy.

A range of tissue types, including both normal and cancerous cells, has been shown to be safely re-oxygenated in our preclinical and clinical studies using TSC’s novel mechanism of action. We believe TSC’s ability to re-oxygenate normal tissue that has become oxygen-deprived provides opportunities for new therapeutic approaches to conditions ranging from stroke and emergency medicine to cardiovascular and neurodegenerative diseases. In oncology, we believe TSC’s therapeutic potential is not limited to one specific tumor type, thereby making it potentially useful to improve standard-of-care treatments in many life-threatening cancers. Given TSC’s safety profile and animal data, we could, with appropriate funding, move directly into Phase 2 studies for TSC in many such cancers. The successful completion of trials for TSC or any other potential product candidate in these or any other indication is dependent upon our ability to further raise necessary capital.

We believe that TSC has potential applications in stroke and emergency medicine. A Phase 2 trial in cooperation with UCLA and the University of Virginia to test TSC in the treatment of acute stroke has received approval for enrollment by the FDA, with the first patient enrolled in Q3 2019. This trial, which will feature in-ambulance dosing of TSC, is named the PreHospital Acute Stroke Therapy - TSC (PHAST - TSC) and is expected to enroll 160 patients, with 80 in the treatment arm and 80 in the control arm. We believe in-ambulance dosing of TSC could significantly cut the time in which the stroke-related oxygen deprivation to brain cells goes untreated, potentially leading to a better outcome for stroke victims treated in this manner. In the last quarter of 2018, we received FDA permission to begin patient enrollment in the PHAST - TSC Phase 2 trial and began enrollment in the third quarter 2019. Subject to receipt of adequate funding to support the PHAST – TSC trial, we expect to data readout during the first half of 2021.

Our primary oncology program targets TSC against treatment-resistant brain cancer. A Phase 2 clinical program, completed in the second quarter of 2015, evaluated 59 patients with newly diagnosed glioblastoma multiforme (“GBM”), a particularly deadly form of primary brain cancer. GBM affects approximately 12,000 patients annually in the United States and approximately 35,000 patients annually worldwide. This open label, historically controlled study demonstrated a favorable safety and efficacy profile for TSC when combined with GBM’s standard of care, including a 37% improvement in overall survival over the control group at two years. A particularly strong efficacy signal was seen in the inoperable patients, where survival of TSC-treated patients at two years was increased by almost four-fold over the controls. In December 2017, the Company initiated the INvestigation of TSC Against Cancerous Tumors (INTACT) Phase 3 trial in the newly diagnosed inoperable GBM patient population. The trial is designed to enroll 236 patients in total, with 118 in the treatment arm and 118 in the control arm.

The lead-in portion of the open-label, dose-escalation Phase 3 INTACT trial, completed in the fourth quarter of 2019, enrolled a total of 19 patients to ensure 8 complete data sets. The findings signaled increased survival in inoperable GBM patients with TSC plus standard of care, which are consistent with the results of the Phase 2 clinical program testing of TSC treatment in newly diagnosed inoperable GBM patients.

Commencement of enrollment in the randomization portion of the INTACT Phase 3 Trial is contingent upon our entering into a strategic partnership providing the necessary resources to undertake the full trial.

In addition to the TSC programs, we are exploring alternatives regarding how best to capitalize upon our product candidate RES-529, which may include possible out-licensing and other options. RES-529 is a novel PI3K/Akt/mTOR pathway inhibitor which has completed two Phase 1 clinical trials for age-related macular degeneration and was in preclinical development in oncology. RES-529 has shown activity in both in vitro and in vivo glioblastoma animal models and has been demonstrated to be orally bioavailable and capable of crossing the blood-brain barrier.

Description of the Private Placement

In December 2019, we entered into a Securities Purchase Agreement (the “December 2019 Purchase Agreement”) with certain institutional and accredited investors providing for the sale in a registered direct offering by the Company of 6,266,787 shares of our common stock (the “December 2019 Offering”). Concurrently with the closing of the transactions contemplated by the December 2019 Purchase Agreement, we issued to the investors in the December 2019 Offering warrants to purchase an aggregate of 6,266,787 shares of our common stock at an initial exercise price equal to \$0.4335 per share (the “Investor Warrants”) and to the placement agent warrants to purchase up to 313,339 shares of common stock at an initial exercise price equal to \$0.6981 per share (the “PA Warrants”, and together with the Investor Warrants, the “Warrants”). The Investor Warrants are exercisable for approximately five and one-half years until June 13, 2025. The PA Warrants are exercisable for approximately five years until December 13, 2024 and (other than the exercise price noted above) are otherwise substantially similar to the Investor Warrants.

The Warrants are exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and by payment in full in immediately available funds for the number of shares of common stock purchased upon such exercise. No fractional shares of common stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will either pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price or round up to the next whole share.

A holder will not have the right to exercise any portion of the warrant if the holder (together with its affiliates) would beneficially own in excess of 4.99% (or, at the election of the holder, 9.99%) of the number of shares of our stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants. However, any holder may increase or decrease such percentage to any other percentage not in excess of 9.99% upon notice to us, provided that any increase in such percentage shall not be effective until 61 days after such notice to us.

In the event of a fundamental transaction, as described in the Warrants and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the holders of the Warrants will be entitled to receive upon exercise of the Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Warrants immediately prior to such fundamental transaction. In addition, upon a fundamental transaction, the holder shall have the right to receive a payment in cash, or under certain circumstances in other consideration, from us at the Black Scholes value as described in the Warrants.

As part of the December 2019 Purchase Agreement, we granted registration rights to the investors in the private placement, pursuant to which we agreed to file a registration statement to register for resale the shares of common stock issued and outstanding as a result of, or issuable upon, the exercise of the Warrants sold pursuant to the December 2019 Purchase Agreement.

Recent Developments

On December 11, 2019, we received a written notice from the staff (the “Staff”) of the Listing Qualifications Department of The Nasdaq Stock Market, LLC (“Nasdaq”) indicating that we were not in compliance with Nasdaq Listing Rule 5550(a)(2) because the bid price for our common stock had closed below \$1.00 per share for the previous 30 consecutive business days.

In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we have 180 calendar days from the date of such notice, or until June 8, 2020, to regain compliance with the minimum bid price requirement. To regain compliance, the bid price for our common stock must close at \$1.00 per share or more for a minimum of 10 consecutive business days.

Nasdaq's written notice has no effect on the listing or trading of our common stock at this time, and we are currently evaluating our alternatives to resolve this listing deficiency.

On December 17, 2019, we received a public reprimand letter (the "Letter") from the Staff. The Letter notified us that our recent offering of 5,104,429 shares of our common stock, pre-funded warrants to purchase 6,324,143 shares of our common stock and warrants to purchase 22,857,144 shares of our common stock completed on November 13, 2019 (the "November Offering") did not satisfy Nasdaq Listing Rule 5635(d) because (a) the Staff determined that the Offering was not a "public offering" as defined in Nasdaq Listing Rule IM-5635-3 and (b) more than 20% of our pre-Offering shares of common stock were issued in the Offering at a price calculated by the Staff to be less than minimum price required in an offering that did not meet the definition of a "public offering". As a consequence, the Staff determined that approval by our shareholders was required for the Offering, and because such shareholder approval was not received, we violated the Nasdaq's shareholder approval rules. The Staff determined delisting our common stock was not an appropriate sanction and closed this matter by issuing the Letter in accordance with Nasdaq Listing Rule 5810(c)(4). The receipt of the Letter has no effect on the listing of our common stock.

As of the close of business on December 18, 2019, there were an aggregate of 33,418,319 shares of our common stock issued and outstanding.

Corporate Information

We are a Delaware corporation that was incorporated in June 2015. Prior to June 2015, we were a Nevada corporation. We maintain our principal executive offices at 1317 Carlton Avenue, Suite 200, Charlottesville, VA 22902. Our telephone number there is (434) 220-0718. The address of our website is www.diffusionpharma.com. The information set forth on, or connected to, our website is expressly not incorporated by reference into, and does not constitute a part of, this prospectus.

We are a "smaller reporting company" as defined in Rule 12b-2 of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and have elected to take advantage of certain of the scaled disclosure available for smaller reporting companies in this prospectus as well as our filings under the Exchange Act.

THE OFFERING

Shares of common stock offered by the selling stockholders:	6,580,126 shares of common stock issuable upon exercise of the Warrants.
Shares of common stock outstanding after completion of this offering, assuming full exercise the Warrants for cash:	39,998,445
Terms of the Offering:	The selling stockholders, including their transferees, donees, pledgees, assignees and successors-in-interest, may sell, transfer or otherwise dispose of any or all of the shares of common stock offered by this prospectus from time to time on The Nasdaq Capital Market or any other stock exchange, market or trading facility on which the shares are traded or in private transactions. The shares of common stock may be sold at fixed prices, at market prices prevailing at the time of sale, at prices related to prevailing market price or at negotiated prices. See the section titled "Plan of Distribution" in this prospectus.
Use of Proceeds:	All proceeds from the sale of shares of common stock issuable upon exercise of the Warrants will be for the account of the selling stockholders. We will not receive any proceeds from the sale of common stock offered pursuant to this prospectus. However, we will receive proceeds upon any cash exercise of the Warrants. See the section titled "Use of Proceeds" in this prospectus.
NASDAQ Capital Market symbol:	DFFN
Trading:	Our shares of common stock currently trade on The NASDAQ Capital Market. There is no established trading market for the common stock purchase warrants and we do not intend to list the common stock purchase warrants on any exchange or other trading system.
Risk Factors:	Investing in our securities involves a high degree of risk and purchasers of our securities may lose their entire investment. See "Risk Factors" below and the other information included elsewhere in this prospectus for a discussion of factors you should carefully consider before deciding to invest in our securities.

The number of shares of our common stock to be outstanding after this offering is based on 33,418,319 shares of common stock outstanding as of December 18, 2019 and excludes:

- As of September 30, 2019, 309,276 shares of common stock issuable upon the exercise of outstanding stock options under the Diffusion Pharmaceuticals Inc. 2015 Equity Incentive Plan, as amended (the "2015 Equity Plan"), at a weighted-average exercise price of \$55.78 per share;

- As of September 30, 2019, 3,469,925 shares of common stock issuable upon the exercise of outstanding warrants, at a weighted-average exercise price of \$15.09 per share;
- As of September 30, 2019, 19,740 shares of common stock reserved for future issuance under the 2015 Equity Plan;
- As of December 18, 2019, an additional 12,612,357 shares of common stock issuable upon the exercise of outstanding warrants, at a weighted-average exercise price of \$0.3539 per share; and
- All 6,580,126 shares of common stock issuable upon the exercise of the Warrants, at a weighted-average exercise price of \$0.446 per share.

All share information contained in this prospectus reflects the completion on December 13, 2018, of a 1-to-15 reverse stock split (the "Reverse Stock Split") of our common stock. No fractional shares were issued in connection with the Reverse Stock Split. Stockholders who otherwise would have been entitled to receive fractional shares of common stock had their holdings rounded up to the next whole share. Proportional adjustments were made to the Company's outstanding warrants, stock options and other equity securities and to the 2015 Equity Incentive Plan, as amended, to reflect the Reverse Stock Split, in each case, in accordance with the terms thereof.

RISK FACTORS

Investing in our securities involves a high degree of risk. Prior to making a decision about investing in our securities, you should consider carefully all of the information included and incorporated by reference or deemed to be incorporated by reference in this prospectus or the applicable prospectus supplement, including the risk factors incorporated by reference herein from our Annual Report on Form 10-K for the year ended December 31, 2018, as updated by annual, quarterly and other reports and documents we file with the SEC after the date of this prospectus and that are incorporated by reference herein, or in the applicable prospectus supplement. Each of these risk factors could have a material and adverse effect on our business, results of operations, financial position or cash flows, which may result in the loss of all or part of your investment. Please also read carefully the section above entitled “Forward-Looking Statements.”

An investment in our securities is speculative and there can be no assurance of any return on any such investment.

An investment in our securities is speculative and there is no assurance that investors will obtain any return on their investment. Investors will be subject to substantial risks involved in an investment in the Company, including the risk of losing their entire investment.

There may be future sales of our securities or other dilution of our equity, which may adversely affect the market price of our common stock.

We are generally not restricted from issuing additional common stock, including any securities that are convertible into or exchangeable for, or that represent the right to receive, common stock. The market price of our common stock could decline as a result of sales of common stock or securities that are convertible into or exchangeable for, or that represent the right to receive, common stock after this offering or the perception that such sales could occur.

If we cannot regain compliance with the Nasdaq Capital Market continued listing standards and other Nasdaq rules, our common stock could be delisted, which would harm our business, the trading price of our common stock, our ability to raise additional capital and the liquidity of the market for our common stock.

Our common stock is currently listed on the Nasdaq Capital Market. To maintain the listing of our common stock on the Nasdaq Capital Market, we are required to meet certain listing requirements, including, among others, either: (i) a minimum closing bid price of \$1.00 per share, a market value of publicly held shares (excluding shares held by our executive officers, directors and 10% or more stockholders) of at least \$1 million and stockholders’ equity of at least \$2.5 million; or (ii) a minimum closing bid price of \$1.00 per share, a market value of publicly held shares (excluding shares held by our executive officers, directors and 10% or more stockholders) of at least \$1 million and a total market value of listed securities of at least \$35 million.

On December 11, 2019, we received a written notice from the Staff indicating that we were not in compliance with Nasdaq Listing Rule 5550(a)(2) because the bid price for our common stock had closed below \$1.00 per share for the previous 30 consecutive business days.

In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we have 180 calendar days from the date of such notice, or until June 8, 2020, to regain compliance with the minimum bid price requirement. To regain compliance, the bid price for our common stock must close at \$1.00 per share or more for a minimum of 10 consecutive business days. We are currently evaluating our alternatives to resolve this listing deficiency.

Also, on December 17, 2019, we received the Letter from the Staff. The Letter notified us that our recent offering of 5,104,429 shares of our common stock, pre-funded warrants to purchase 6,324,143 shares of our common stock and warrants to purchase 22,857,144 shares of our common stock completed on November 13, 2019 (the “November Offering”) did not satisfy Nasdaq Listing Rule 5635(d) because (a) the Staff determined that the Offering was not a “public offering” as defined in Nasdaq Listing Rule IM-5635-3 and (b) more than 20% of our pre-Offering shares of common stock were issued in the Offering at a price calculated by the Staff to be less than minimum price required in an offering that did not meet the definition of a “public offering”. As a consequence, the Staff determined that approval by our shareholders was required for the Offering, and because such shareholder approval was not received, we violated the Nasdaq’s shareholder approval rules. The Staff determined delisting our common stock was not an appropriate sanction and closed this matter by issuing the Letter in accordance with Nasdaq Listing Rule 5810(c)(4).

There is no assurance that we will regain compliance with the minimum closing price requirement and otherwise continue to meet the other listing requirements. In the event that our common stock is delisted from Nasdaq and is not eligible for quotation or listing on another market or exchange, trading of our common stock and warrants could be conducted only in the over-the-counter market or on an electronic bulletin board established for unlisted securities such as the Pink Sheets or the OTC Bulletin Board. In such event, it could become more difficult to dispose of, or obtain accurate price quotations for, our common stock and warrants, and there would likely also be a reduction in our coverage by securities analysts and the news media, which could cause the price of our common stock to decline further.

The Bylaws of the Company include a forum selection clause, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or agents.

Our Bylaws (the "Bylaws") require that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim for breach of a fiduciary duty owed by any of our directors, officers, employees or agents to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our Certificate of Incorporation or our Bylaws or (iv) any action asserting a claim governed by the internal affairs doctrine, in each case subject to said Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein.

This exclusive forum provision will not apply to claims under the Exchange Act, but will apply to other state and federal law claims including actions arising under the Securities Act (although our stockholders will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder). Section 22 of the Securities Act, however, creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. Accordingly, there is uncertainty as to whether a court would enforce such a forum selection provision as written in connection with claims arising under the Securities Act. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock is deemed to have notice of and consented to the foregoing provisions. This forum selection provision in our Bylaws may limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or agents, which may discourage lawsuits against us and such persons. It is also possible that, notwithstanding the forum selection clause included in our Bylaws, a court could rule that such a provision is inapplicable or unenforceable.

SECURITY OWNERSHIP OF BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth certain information with respect to the beneficial ownership of our common stock as of December 18, 2019, for:

- (1) each person or group of affiliated persons known by us to be the beneficial owner of more than 5% of our common stock;
- (2) each of our named executive officers;
- (3) each of our directors; and
- (4) all current executive officers and directors as a group.

Applicable percentage ownership is based on 33,418,319 shares of common stock outstanding as of December 18, 2019. We have determined beneficial ownership in accordance with SEC rules. The information does not necessarily indicate beneficial ownership for any other purpose. Under these rules, the number of shares of common stock deemed outstanding includes shares issuable upon exercise of options or warrants, or the conversion of convertible notes, held by the respective person or group that may be exercised or converted within 60 days after December 18, 2019. For purposes of calculating each person's or group's percentage ownership, stock options and warrants exercisable, and notes convertible, within 60 days after December 18, 2019 are included for that person or group, but not the stock options of any other person or group.

Unless otherwise indicated and subject to applicable community property laws, to our knowledge, each stockholder named in the following table possesses sole voting and investment power over the shares listed. The address for each beneficial owner, unless otherwise noted, is c/o Diffusion Pharmaceuticals Inc. 1317 Carlton Avenue, Suite 200, Charlottesville, VA 22902.

Name of Beneficial Owner	Amount and Nature of Beneficial Ownership ⁽¹⁾	Percent of Class(%) ⁽¹⁾
<i>5% or Greater Stockholders:</i>		
Sabby Volatility Warrant Master Fund, Ltd. 10 Mountainview Road, Suite 205 Upper Saddle River, NJ 07458 ⁽²⁾	6,202,273	6.27%
<i>Named Executive Officers and Directors:</i>		
David Kalergis ⁽²⁾	34,240	*
John L. Gainer ⁽³⁾	42,389	*
Mark T. Giles ⁽⁴⁾	79,998	*
Alan Levin ⁽⁵⁾	25,983	*
Robert Adams ⁽⁶⁾	30,372	*
William K. Hornung ⁽⁷⁾	10,074	*
Thomas Byrne ⁽⁸⁾	21,831	*
All current officers and directors as a group (7 persons) ⁽⁸⁾	244,887	*

* Less than 1%

- (1) Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities. Shares of common stock subject to options and warrants currently exercisable, or exercisable within 60 days of December 18, 2019, are deemed outstanding for computing the percentage of the person holding such options or warrants but are not deemed outstanding for computing the percentage of any other person.
- (2) Based on a Selling Stockholder Notice and Questionnaire dated December 17, 2019. Includes 4,105,729 shares that may be received upon the exercise of warrants. All warrants held by the holder are not currently exercisable by such holder if such exercise would result in the holder owning greater than 4.99% of the Company's common stock. As such, the shares that would be received upon the exercise of the warrants in excess of 4.99% of the Company's common stock are not included for purposes of calculating their percentage ownership.

- (3) Consists of (a) 4,578 shares held directly by Mr. Kalergis directly, (b) 493 shares held by Mr. Kalergis' wife, (c) 2,551 shares held jointly with Mr. Kalergis' wife and (d) 26,618 shares of common stock issuable upon the exercise of options exercisable within 60 days of December 18, 2019.
- (4) Consists of (a) 4,389 shares held by the John L. Gainer Declaration of Trust dated February 19, 2008 and (b) 18,000 shares of common stock issuable upon the exercise of options exercisable within 60 days of December 18, 2019. Dr. Gainer is a trustee of the revocable trust, and, as such, may be deemed to share beneficial ownership of such shares. Dr. Gainer expressly disclaims beneficial ownership of any such shares except to the extent of his pecuniary interest therein.
- (5) Consists of (a) 294 shares held for the benefit of Mr. Giles in his individual retirement account, (b) 53,513 shares held by MTG Investment Holdings, LLC and (c) 26,191 shares of common stock issuable upon the exercise of options exercisable within 60 days of December 18, 2019. Mr. Giles is the sole member of MTG Investment Holdings, LLC and may be deemed to be the beneficial owner of such securities. Mr. Giles disclaims beneficial ownership of such securities except to the extent of his pecuniary interest therein.
- (6) Consists of (a) 1,654 shares held by Mr. Levin directly and (b) 24,329 shares of common stock issuable upon the exercise of options exercisable within 60 days of December 18, 2019.
- (7) Consists of (a) 1,706 shares held directly by Mr. Adams directly, (b) 631 shares held jointly with Mr. Adams' wife, (c) 1,260 shares held for the benefit of Mr. Adams in his 401(k) retirement account and (d) 26,775 shares of common stock issuable upon the exercise of options exercisable within 60 days of December 18, 2019.
- (8) Consists of shares of common stock issuable upon the exercise of options exercisable within 60 days of December 18, 2019.

USE OF PROCEEDS

All shares of our common stock offered by this prospectus are being registered for the account of the selling stockholders. We will not receive any of the proceeds from the sale of these shares. We will receive proceeds from the cash exercise of the Warrants which, if exercised in cash with respect to all of the 6,580,126 shares of common stock underlying the Warrants, would result in gross proceeds of approximately \$2.9 million to us. We will use any proceeds received by us from the cash exercise of the Warrants to fund research and development of our lead product candidate, TSC, including clinical trial activities, and for general corporate purposes. We may also use all or a portion of such proceeds to fund possible investments in, or acquisitions of, complementary businesses, technologies or products, but we currently have no agreements or commitments with respect to any investment or acquisition. We cannot predict when or if the Warrants will be exercised, and it is possible that the Warrants may expire and never be exercised.

DESCRIPTION OF CAPITAL STOCK

Company Capitalization

Our authorized capital stock consists of 1,000,000,000 shares of common stock and 30,000,000 shares of preferred stock, \$0.001 par value, all of which remains undesignated. The following summary is qualified in its entirety by reference to our Certificate of Incorporation, as amended, a copy of which is filed as an exhibit to our previous filings with the SEC and incorporated herein by reference.

Common Stock

Authorized. We are authorized to issue 1,000,000,000 shares of common stock, of which 33,418,319 shares were issued and outstanding as of December 18, 2019. We may amend from time to time our Certificate of Incorporation to increase the number of authorized shares of common stock. Any such amendment would require the approval of the holders of a majority of the voting power of the shares entitled to vote thereon.

Voting Rights. For all matters submitted to a vote of stockholders, each holder of common stock is entitled to one vote for each share registered in the holder's name on our books. Our common stock does not have cumulative voting rights. At all meetings of the stockholders, except where otherwise provided by law, the Certificate of Incorporation or Bylaws, the presence, in person or by proxy duly authorized, of the holders of a majority of the outstanding shares of common stock entitled to vote constitutes a quorum for the transaction of business. Except as otherwise provided by law or by the Certificate of Incorporation or Bylaws, in all matters other than the election of directors, the affirmative vote of the majority of shares of common stock present in person or represented by proxy at the meeting and entitled to vote generally on the subject matter shall be the act of the stockholders. Except as otherwise provided by law, the Certificate of Incorporation or Bylaws, directors are elected by a plurality of the votes of the shares of common stock present in person or represented by proxy at the meeting and entitled to vote generally on the election of directors.

Dividends. Subject to limitations under Delaware law and any preferences that may be applicable to any then outstanding preferred stock, holders of common stock are entitled to receive ratably those dividends, if any, as may be declared by our Board out of legally available funds.

Liquidation. Upon our liquidation, dissolution or winding up, the holders of common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities of our company, subject to any prior rights of any preferred stock then outstanding.

Fully Paid and Non-assessable. All shares of our outstanding common stock are fully paid and non-assessable and any additional shares of common stock that we issue will be fully paid and non-assessable.

Other Rights and Restrictions. Holders of common stock do not have preemptive or subscription rights, and they have no right to convert their common stock into any other securities. There are no redemption or sinking fund provisions applicable to common stock. The rights, preferences and privileges of common stockholders are subject to the rights of the stockholders of any series of preferred stock which we may designate in the future. Our Certificate of Incorporation and Bylaws do not restrict the ability of a holder of common stock to transfer the holder's shares of common stock.

Listing. Our common stock is quoted on the Nasdaq Capital Market under the symbol "DDFN." As of December 18, 2019, there were 518 record holders of our common stock.

Transfer Agent and Registrar. The transfer agent and registrar for common stock is Computershare Investor Services, LLC, 250 Royall Street, Canton, Massachusetts, telephone number: 1-800-942-5909.

Warrants

The material terms and provisions of the Warrants that are exercisable for the common stock registered in this Form S-1 are summarized below. The following description is subject to, and qualified in its entirety by, the forms of warrant which are incorporated by reference. You should review the forms of warrant for a complete description of the terms and conditions applicable to the warrants. See “Information Incorporated by Reference and Available Information” below.

General. Each selling stockholder received a warrant to purchase a certain number of shares of our common stock in accordance with the terms and conditions set forth in the applicable warrant.

Exercisability. The Investor Warrants may be exercised at any time on or after their date of issuance, have an exercise price of \$0.4335 per share and are exercisable until June 13, 2025. The PA Warrants may be exercised at any time on or after their date of issuance, have an exercise price of \$0.6981 per share and are exercisable until December 13, 2024. All Warrants will be exercisable, at the option of each holder, in whole or in part by delivering a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise. The exercise price of the Warrant is subject to adjustment in the event of stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock.

Exercise Limitations. A holder of a Warrant will not have the right to exercise any portion of the Warrant if the holder (together with its affiliates) would beneficially own in excess of 4.99% (or, at election of holder, 9.99%) of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the Warrants. However, any holder may increase or decrease such percentage to any other percentage not in excess of 9.99% upon notice to us provided that any increase shall not be effective until 61 days following notice to us.

Transferability. Subject to applicable laws, the Warrants are separately tradeable immediately after issuance at the option of the holders and may be transferred at the option of the holders.

No Listing. There is no established public trading market for the Warrants and we do not expect a market to develop. In addition, we do not intend to apply for listing of the Warrants on any securities exchange or trading system. Without an active market, the liquidity of the Warrants will be limited.

Fundamental Transactions. In the event of a “fundamental transaction,” as defined in the Warrants and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of more than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding common stock, the holders of the Warrants will be entitled to receive upon exercise of the Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Warrants immediately prior to such fundamental transaction.

In addition, in the event of a fundamental transaction (subject to certain exceptions), we or any successor entity shall, at the holder’s option, purchase the holder’s Warrants for an amount of cash equal to the value of the Warrants as determined in accordance with the Black-Scholes option pricing model.

Cashless Exercise. If, at the time a holder exercises its Warrant, there is no effective registration statement registering, or the prospectus contained therein is not available for an issuance of the shares underlying the Warrant to the holder, and the holder is not able to sell the shares issuable upon exercise of the Warrant without limitations on volume pursuant to Rule 144, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of our common stock determined according to a formula set forth in the Warrant. In the event of a cashless exercise, if we fail to timely deliver the shares underlying the Warrants, we will be subject to certain buy-in provisions.

Rights as a Stockholder. Except as otherwise provided in the Warrant or by virtue of a holder's ownership of shares of our common stock, the holders of the Warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their Warrants.

Amendments. Amendments and waivers of the terms of the Warrants require the written consent of the holders of Warrants representing not less than a majority of the shares issuable upon exercise of the Warrants then outstanding and us, as well as any Warrant holder that would be disproportionately and materially adversely impacted by the amendment.

No Fractional Shares. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of the Warrants. As to any fraction of a share which the holder would otherwise be entitled to purchase upon such exercise, we shall or shall cause, at our option, the payment of a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the exercise price of the Warrant per whole share or round such fractional share up to the nearest whole share.

Preferred Stock

As of September 30, 2019, no shares of preferred stock of the Company were issued or outstanding. Our Certificate of Incorporation authorizes our board of directors to provide for the issuance of up to 30,000,000 shares of preferred stock in one or more series. Our board is authorized to classify or reclassify any unissued portion of our authorized shares of preferred stock to provide for the issuance of shares of other classes or series, including preferred stock in one or more series. We may issue preferred stock from time to time in one or more classes or series, with the exact terms of each class or series established by our board. Without seeking stockholder approval, our board may issue preferred stock with voting and other rights that could adversely affect the voting power of the holders of our common stock. Additionally, the issuance of preferred stock may have the effect of decreasing the market price of the common stock.

The rights, preferences, privileges and restrictions of the preferred stock of each series will be fixed by the certificate of designation relating to each series. A prospectus supplement relating to each series will specify the terms of the preferred stock, including, but not limited to:

- the distinctive designation and the maximum number of shares in the series;
- the terms on which dividends, if any, will be paid;
- the voting rights, if any, on the shares of the series;
- the terms and conditions, if any, on which the shares of the series shall be convertible into, or exchangeable for, shares of any other class or classes of capital stock;
- the terms on which the shares may be redeemed, if at all;
- the liquidation preference, if any; and
- any or all other preferences, rights, restrictions, including restrictions on transferability, and qualifications of shares of the series.

The issuance of preferred stock may delay, deter or prevent a change in control.

We will describe the specific terms of a particular series of preferred stock in the prospectus supplement relating to that series. The description of preferred stock above and the description of the terms of a particular series of preferred stock in the prospectus supplement are not complete. You should refer to the applicable certificate of designation for complete information. The prospectus supplement will contain a description of U.S. federal income tax consequences relating to the preferred stock.

Anti-Takeover Provisions

Delaware Anti-Takeover Law

We are subject to Section 203 of the DGCL. Section 203 generally prohibits a public Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding (a) shares owned by persons who are directors and also officers of the corporation and (b) shares issued under employee stock plans under which employee participants do not have the right to determine whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or subsequent to the date of the transaction, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Section 203 defines a business combination to include:

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

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Warrants and Stock Options Issued and Outstanding

As of September 30, 2019, the Company had the following warrants outstanding to acquire shares of its common stock:

	<u>Outstanding</u>	<u>Range of exercise price per share</u>	<u>Expiration dates</u>
Common stock warrants issued prior to 2016	1,667	\$562.50	2019
Common stock warrants issued in 2017	903,870	\$33.30	March 2022
Common stock warrants issued in 2018	1,181,375	\$12.00 - \$15.00	January 2023
Common stock warrants issued in 2019	1,382,913	\$5.00 - \$6.11875	2024
	<u>3,469,825</u>		

Additionally, as of September 30, 2019, we had 309,276 shares of common stock issuable upon the exercise of outstanding stock options under the 2015 Equity Plan at a weighted-average exercise price of \$55.78 per share. Also, as of December 18, 2019, we had an additional 12,612,357 shares of common stock issuable upon the exercise of outstanding warrants, at a weighted-average exercise price of \$0.354 per share; and as of December 18, 2019, we had an additional 6,580,126 shares of common stock issuable upon the exercise of the Warrants, at a weighted-average exercise price of \$0.446 per share.

THE SELLING STOCKHOLDERS

This prospectus covers an aggregate of up to 6,580,126 shares of our common stock that may be sold or otherwise disposed of by the selling stockholders. Such shares are issuable to the selling stockholders upon the exercise of the Warrants we issued to the selling stockholders in a private placement transaction.

The following table sets forth certain information with respect to each selling stockholder, including (i) the shares of our common stock beneficially owned by the selling stockholder prior to this offering, (ii) the number of shares that may be offered by the selling stockholder pursuant to this prospectus and (iii) the selling stockholder's beneficial ownership after the completion of this offering, assuming that all of the shares covered hereby (but none of the other shares, if any, held by the selling stockholders) are sold.

The table is based on information supplied to us by the selling stockholders, with beneficial ownership and percentage ownership determined in accordance with the rules and regulations of the SEC and include voting or investment power with respect to shares of stock. This information does not necessarily indicate beneficial ownership for any other purpose. In computing the number of shares beneficially owned by a selling stockholder and the percentage ownership of that selling stockholder, shares of common stock subject to warrants held by that selling stockholder that are exercisable as of December 18, 2019, or exercisable within 60 days after December 18, 2019, are deemed outstanding. Such shares, however, are not deemed outstanding for the purposes of computing the percentage ownership of any other person. The percentage of beneficial ownership calculations below are based on 33,418,319 shares of common stock outstanding as of December 18, 2019.

The registration of these shares of common stock does not mean that the selling stockholders will sell or otherwise dispose of all or any of those securities. The selling stockholders may sell or otherwise dispose of all, a portion or none of such shares from time to time. We do not know the number of shares, if any, that will be offered for sale or other disposition by any of the selling stockholders under this prospectus. Furthermore, the selling stockholders may have sold, transferred or disposed of the shares of common stock covered hereby in transactions exempt from the registration requirements of the Securities Act since the date on which we filed this prospectus.

The actual number of shares of common stock included in the registration statement of which this prospectus forms a part includes, in accordance with Rule 416 under the Securities Act, such indeterminate number of additional shares of our common stock as may become issuable in connection with any proportionate adjustment for any stock splits, stock combinations, stock dividends, recapitalizations or similar events with respect to common stock.

To our knowledge and except as noted below, none of the selling stockholders has, or within the past three years has had, any position, office or other material relationship with us or any of our predecessors or affiliates.

Selling Stockholder	Beneficial Ownership Before This Offering		Shares Underlying Warrants Offered Hereby	Beneficial Ownership After This Offering	
	Number of Shares Owned	Percentage of Outstanding Shares		Number of Shares Owned	Percentage of Outstanding Shares
Armistice Capital Master Fund, Ltd. 510 Madison Ave, Floor 7 New York, NY 10022	9,105,730 (1)	4.99% (3)	2,238,138	6,867,592	4.99% (3)
Sabby Volatility Warrant Master Fund, Ltd. 10 Mountainview Road, Suite 205 Upper Saddle River, NJ 07458	6,202,273 (2)	6.27% (3)	2,238,138	3,964,135	6.27% (3)
Intracoastal Capital LLC 2211A Lakeside Drive Bannockburn, Illinois 60015	2,069,082 (1)	4.99% (3)	1,790,511	278,571	*
Michael Vasinkevich c/o H.C. Wainwright & Co., LLC 430 Park Avenue, 4th Floor New York, New York 10022	646,932 (1)	1.9%	202,104	444,828	1.3%
Noam Rubinstein c/o H.C. Wainwright & Co., LLC 430 Park Avenue, 4th Floor New York, New York 10022	315,211 (1)	*	98,702	216,509	*
Mark Viklund c/o H.C. Wainwright & Co., LLC 430 Park Avenue, 4th Floor New York, New York 10022	28,519 (1)	*	9,400	19,119	*
Charles Worthman c/o H.C. Wainwright & Co., LLC 430 Park Avenue, 4th Floor New York, New York 10022	10,005 (1)	*	3,133	6,872	*

This table and the information in the notes below are based upon information supplied by the selling stockholders, including reports and amendments thereto filed with the SEC on Schedule 13G and other information available to us.

- (1) All shares held are in the form of the Warrants or other warrants to purchase common stock of the Company.
- (2) Includes 4,105,729 shares that may be received upon the exercise of warrants.
- (3) All warrants held by the holders are not currently exercisable by the holders if such exercise would result in the holder owning greater than 4.99% of the Company's common stock. As such, the shares that would be received upon the exercise of the warrants, if such exercise would result in the holder owning greater than 4.99% of the Company's common stock, are not included for purposes of calculating these percentages.

* Less than 1%

PLAN OF DISTRIBUTION

The selling stockholders, including their transferees, donees, pledgees, assignees and successors-in-interest, may sell, transfer or otherwise dispose of any or all of the shares of common stock offered by this prospectus from time to time on The Nasdaq Capital Market or any other stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at market prices prevailing at the time of sale, at prices related to prevailing market price or at negotiated prices. The selling stockholders may use any one or more of the following methods when selling shares:

- 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;
- broker-dealers may agree with the selling stockholder to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise; or
- any other method permitted pursuant to applicable law.

The selling stockholders may also sell shares under Rule 144 under the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by the selling stockholders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling stockholders or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser in amounts to be negotiated. The selling stockholders does not expect these commissions and discounts relating to its sales of shares to exceed what is customary in the types of transactions involved.

The selling stockholder may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The selling stockholders may also sell shares of our common stock short and deliver these securities to close out its short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The selling stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which 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.

The selling stockholders and any broker-dealers or agents that are involved in selling the shares may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each selling stockholder has informed us that it does not have any agreement or understanding, directly or indirectly, with any person to distribute the common stock.

Because the selling stockholders may be deemed to be an “underwriter” within the meaning of the Securities Act, it will be subject to the prospectus delivery requirements of the Securities Act. In addition, any securities covered by this prospectus which qualify for sale pursuant to Rule 144 under the Securities Act may be sold under Rule 144 rather than under this prospectus. The selling stockholders have advised us that there is no underwriter or coordinating broker acting in connection with the proposed sale of the resale securities by the selling stockholders.

The shares will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the shares may not be sold unless they 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.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale shares may not simultaneously engage in market making activities with respect to our common stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the selling stockholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of shares of our common stock by the selling stockholders or any other person. We will make copies of this prospectus available to the selling stockholders and have informed the selling stockholders of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

We are required to pay certain fees and expenses in connection with the registration of the shares of common stock issuable upon exercise of the Warrants. We have agreed to indemnify the selling stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We will not receive any proceeds from the sale of the shares by the selling stockholders. However, we will receive proceeds from cash exercise of the Warrants.

LEGAL MATTERS

The validity of the securities being offered by this prospectus will be passed upon for us by Dechert LLP.

EXPERTS

The consolidated financial statements of Diffusion Pharmaceuticals Inc. as of and for the years ended December 31, 2018 and 2017, have been incorporated by reference herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing. The audit report covering the December 31, 2018 consolidated financial statements contains an explanatory paragraph that states that the Company has suffered recurring losses from operations, has limited resources available to fund current research and development activities, and will require substantial additional financing to continue to fund its research and development activities that raise substantial doubt about its ability to continue as a going concern. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act, with respect to the securities being offered by this prospectus. This prospectus does not contain all of the information in the registration statement and its exhibits. For further information with respect to us and the securities offered by this prospectus, we refer you to the registration statement and its exhibits. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

We file electronically with the SEC annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements and other information and amendments to those reports filed or furnished pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. The SEC maintains an Internet site (www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. Copies of these reports, proxy and information statements and other information may be obtained by electronic request at the following e-mail address: publicinfo@sec.gov.

We make available, free of charge and through our Internet web site at www.diffusionpharma.com, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to any such reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. We also make available, free of charge and through our Internet web site, to any stockholder who requests, the charters of our board committees, our Corporate Governance Guidelines and our Code of Business Conduct and Ethics. Requests for copies can be directed to Investor Relations at (434) 220-0718. The information set forth on, or connected to, our website is expressly not incorporated by reference into, and does not constitute a part of, this prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference information into this prospectus. This means we can disclose information to you by referring you to another document we filed with the SEC. This prospectus incorporates by reference the following documents (other than any portion of the respective filings furnished, rather than filed, under the applicable SEC rules) that we have filed with the SEC but have not included or delivered with this prospectus:

- our Annual Report on [Form 10-K for the fiscal year ended December 31, 2018, filed with the SEC on March 19, 2019](#);
- our Quarterly Reports on Form 10-Q for the fiscal quarters ended [March 31, 2019](#), [June 30, 2019](#) and [September 30, 2019](#), filed with the SEC on [May 9, 2019](#), [August 8, 2019](#) and [November 8, 2019](#), respectively;
- our Current Reports on Form 8-K filed with the SEC on [January 18, 2019](#), [May 28, 2019](#), [June 13, 2019](#), [November 13, 2019](#), [November 15, 2019](#), [November 19, 2019](#), [December 11, 2019](#), [December 13, 2019](#) and [December 20, 2019](#) (in each case, other than the portions of such reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items);

- our Definitive Proxy Statement on [Schedule 14A filed with the SEC on April 30, 2019](#); and
- the description of our common stock included in our amended registration statement on [Form 8-A filed on November 8, 2016](#) under the Exchange Act, and any amendment or report we may file with the SEC for the purpose of updating such description.

Any statement contained in any document incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or any prospectus modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We also incorporate by reference any future filings, other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items, made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, in each case, other than those documents or the portions of those documents deemed to be furnished and not filed in accordance with SEC rules, until the offering of the securities under the registration statement of which this prospectus forms a part is terminated or completed. Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and later information filed with the SEC may update and supersede some of the information included or incorporated by reference in this prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded.

We will provide without charge to each person, including any beneficial owners, to whom this prospectus is delivered, upon his or her written or oral request, a copy of any or all reports or documents referred to above which have been or may be incorporated by reference into this prospectus but not delivered with this prospectus, excluding exhibits to those reports or documents unless they are specifically incorporated by reference into those documents. You may request a copy of these documents by writing or telephoning us at the following address:

Diffusion Pharmaceuticals Inc.
1317 Carlton Avenue, Suite 200
Charlottesville, Virginia 22902
(434) 220-0718
Attention: Investor Relations

In addition, copies of any or all of the documents incorporated herein by reference may be accessed at our website at www.diffusionpharma.com. Information contained on our website is not incorporated by reference into this prospectus or any supplement to this prospectus, and you should not consider that information to be part of this prospectus or any such supplement.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth all costs and expenses, other than placement agent discounts and commissions, paid or payable by us, in connection with the sale of the securities being registered under this registration statement. All amounts shown are estimates except for the SEC registration fee and the Financial Industry Regulatory Authority, Inc., or FINRA, filing fee.

	Amount
SEC registration fee	\$ 381.01
Legal fees and expenses	30,000
Accounting fees and expenses	20,000
Miscellaneous expenses	2,618.99
Total	\$ 53,000

Item 14. Indemnification of Directors and Officers.

We are incorporated under the laws of the State of Delaware. Section 145 of the Delaware General Corporation Law (“DGCL”), provides that a Delaware corporation may indemnify any persons who 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 was an officer, director, employee or agent of such corporation, or is or was serving at the request of such person as an officer, director, employee or agent of another corporation or 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 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 by reason of the fact that such person 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 or 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 the officer or director 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, the corporation must indemnify him or her against the expenses which such officer or director has actually and reasonably incurred. Article V of our restated certificate of incorporation provides for indemnification of our directors and officers, and Article X of our amended and restated bylaws provides for indemnification of our directors, officers, employees and other agents, to the maximum extent permitted by the DGCL. We have entered into indemnification agreements with our officers and directors. In addition, we maintain a policy providing directors’ and officers’ liability insurance.

Section 102 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 breach of the director’s duty of loyalty to the corporation or its stockholders;

- for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law;
- for acts related to unlawful stock repurchases, redemptions or other distributions or payment of dividends; or
- for any transaction from which the director derived an improper personal benefit.

Our restated certificate of incorporation and amended and restated bylaws include such a provision. Expenses incurred by any officer or director in defending any such action, suit or proceeding in advance of its final disposition shall be paid by us 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.

Item 15. Recent Sales of Unregistered Securities.

Set forth below is information regarding securities issued by us since January 1, 2016 that were not registered under the Securities Act of 1933, as amended, or the Securities Act. Also included is the consideration, if any, received by us, for such securities and information relating to the Securities Act, or rule of the SEC, under which exemption from registration was claimed.

Acorn Advisory Services

On May 21, 2018 and October 22, 2018, we issued 3,031 and 4,762 shares of Common Stock (each as adjusted for the Reverse Stock Split), respectively, to Acorn Management Partners, L.L.C. as consideration for advisory services provided to us. The securities were issued to an accredited investor in reliance upon an exemption pursuant to Section 4(a)(2) of the Securities Act and the rules and regulations promulgated thereunder.

Private Placements

In March 2017, we conducted a private placement (the "Private Placement"), pursuant to which we issued 12,376,329 shares of Series A Preferred Stock and 5-year warrants to purchase 825,099 shares of our common stock at an exercise price equal to \$33.30 per share (the "2017 Warrants"). The aggregate gross proceeds from the Private Placement were \$25.0 million, prior to deducting placement agent fees and expenses payable by us. Maxim Merchant Capital, a division of Maxim Group LLC ("Maxim"), acted as our sole placement agent in the Private Placement. We issued to Maxim and its designees 5-year warrants, to purchase 78,638 shares of common stock at an exercise price equal to \$33.30 per share, with such warrants containing a cashless exercise provision. The securities were issued to accredited investors in reliance upon an exemption pursuant to Section 4(a)(2) of the Securities Act and the rules and regulations promulgated thereunder.

As part of the Private Placement, we entered into registration rights agreements with the investors in the Private Placement and Maxim, pursuant to which we agreed to file a registration statement to register for resale the shares of common stock (i) issued and outstanding as a result of, or issuable upon, the conversion of the shares of Series A Preferred Stock, (ii) issued and outstanding as a result of, or issuable upon, the exercise of the 2017 Warrants sold pursuant to the Private Placement and (iii) issuable as payment of dividends accruing on the Series A Preferred Stock. Such registration statement was declared effective on June 1, 2017.

On January 22, 2018, substantially concurrently with the completion our January 2018 public offering of common stock and warrants (the "January Offering"), all outstanding shares of Series A Preferred Stock mandatorily converted into an equivalent number of shares of our common stock. We were obligated to issue for no consideration to the holders of Series A Preferred Stock as of January 22, 2018 an aggregate of 553,752 shares of common stock upon conversion of the outstanding Series A Preferred Stock, 777,895 shares of common stock pursuant to a make-whole adjustment and an aggregate of 39,596 shares of common stock in respect of accrued but unpaid dividends on the Series A Preferred Stock. The dividend shares also include 7 shares of common stock issuable in respect of accrued but unpaid dividends on shares of Series A Preferred Stock converted into common stock voluntarily by the holder prior to the closing of the January Offering.

On May 23, 2019, we entered into a Securities Purchase Agreement (the “May 2019 Purchase Agreement”) with certain institutional and accredited investors providing for the sale in a registered direct offering by the Company of 1,317,060 shares of our common stock, par value \$0.001 per share, at an offering price of \$4.77 for gross proceeds of approximately \$6,282,376 before the deduction of the placement agent fees and offering expenses. Concurrently with the closing of the transactions contemplated by the May 2019 Purchase Agreement, in a private placement transaction, we issued to the investors warrants to purchase an aggregate of 1,317,060 shares of our common stock at an initial exercise price equal to \$5.00 per share and to the placement agent warrants to purchase up to 65,853 shares of common stock at an initial exercise price equal to \$6.11875 per share. The warrants issued to the investors are exercisable for approximately five and one-half years beginning on the date of their issuance. The warrants issued to the placement agent have a term of approximately five years from the date of issuance and (other than the exercise price noted above) are otherwise substantially similar to the warrants issued to the investors. The securities were issued to accredited investors in reliance upon an exemption pursuant to Section 4(a)(2) of the Securities Act and the rules and regulations promulgated thereunder.

On December 11, 2019, we entered into a Securities Purchase Agreement (the “December 2019 Purchase Agreement”) with certain institutional and accredited investors providing for the sale in a registered direct offering by the Company of 6,266,787 shares of our common stock, par value \$0.001 per share, at an offering price of \$0.4335 per share (the “December 2019 Offering”). Concurrently with the closing of the transactions contemplated by the December 2019 Purchase Agreement, in a private placement transaction, we issued to the investors in the December 2019 Offering warrants to purchase an aggregate of 6,266,787 shares of our common stock at an initial exercise price equal to \$0.4335 per share (the “December 2019 Warrants”) and to the placement agent warrants to purchase up to 313,339 shares of common stock at an initial exercise price equal to \$0.6981 per share. The warrants were issued to the investors at a purchase price of \$0.125 per warrant. The warrants issued to the investors are exercisable for approximately five and one-half years until June 13, 2025. The warrants issued to the placement agent are exercisable for approximately five years until December 13, 2024 and (other than the exercise price noted above) are otherwise substantially similar to the warrants issued to the investors. The securities were issued to accredited investors in reliance upon an exemption pursuant to Section 4(a)(2) of the Securities Act and the rules and regulations promulgated thereunder. As part of the December 2019 Purchase Agreement, we agreed to grant registration rights to the investors in the private placement, pursuant to which we agreed to file a registration statement to register for resale the shares of common stock issued and outstanding as a result of, or issuable upon, the exercise of the December 2019 Warrants sold pursuant to the December 2019 Purchase Agreement. This registration statement relates to the December 2019 Warrants.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits.

See the Exhibit Index attached to this registration statement, which is incorporated by reference herein.

(b) Financial Statement Schedules.

No financial statement schedules are provided because the information called for is not required or is shown either in the financial statements or the notes thereto.

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 prospectus required by Section 10(a)(3) of the Securities Act;

(ii) To reflect in the prospectus any facts or events arising after the effective date of this 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 and of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 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 this registration statement or any material change to such information in this registration statement; provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) above do not apply if the registration statement is on Form S-3 or Form F-3 and the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Exchange Act 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:

(i) 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

(ii) 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 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 date of the first 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 the 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 this registration statement or made in a document incorporated or deemed incorporated by reference into this registration statement or prospectus that is a part of this registration statement will, as to a purchaser with a time of contract sale prior to such effective date, supersede or modify any statement that was made in this registration statement or prospectus that was a part of this registration statement or made in any such document immediately prior to such effective date.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(6) That, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) 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.

(7) To file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the SEC under Section 305(b)(2) of the Trust Indenture Act.

(8) The undersigned hereby undertakes that:

(i) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as a part of this registration statement in reliance on Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be a part of this registration statement as of the time it was declared effective.

(ii) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus 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 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, 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 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the 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 against the registrant 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 of 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.

EXHIBIT INDEX

Exhibit No.	Description	Method of Filing
3.1	Certificate of Incorporation of Diffusion Pharmaceuticals Inc., as amended	<u>Incorporated by reference to Exhibit 3.1 to the registrant's annual report on Form 10-K for the year ended December 31, 2018</u>
3.2	Bylaws of Diffusion Pharmaceuticals Inc., as amended	<u>Incorporated by reference to Exhibit 3.4 to the registrant's annual report on Form 10-K for the year ended December 31, 2015</u>
4.1	Form of 2017 Warrant	<u>Incorporated by reference to Exhibit 4.1 to the registrant's current report on Form 8-K filed on March 15, 2017</u>
4.2	Form of 2018 Warrant	<u>Incorporated by reference to Exhibit 4.1 to the registrant's current report on Form 8-K filed on January 19, 2018</u>
4.3	Form of 2018 Underwriter's Warrant	<u>Incorporated by reference to Exhibit 4.2 to the registrant's current report on Form 8-K filed on January 22, 2018</u>
4.4	Form of May 2019 Warrant	<u>Incorporated by reference to Exhibit 4.1 to the registrant's current report on Form 8-K filed on May 28, 2019</u>
4.5	Form of May 2019 Placement Agent's Warrant	<u>Incorporated by reference to Exhibit 4.2 to the registrant's current report on Form 8-K filed on May 28, 2019</u>

4.6	Form of November 2019 Series I Warrant	Incorporated by reference to Exhibit 4.1 to the registrant's current report on Form 8-K filed on November 13, 2019
4.7	Form of November 2019 Series II Warrant	Incorporated by reference to Exhibit 4.2 to the registrant's current report on Form 8-K filed on November 13, 2019
4.8	Form of November 2019 Pre-Funded Warrant	Incorporated by reference to Exhibit 4.3 to the registrant's current report on Form 8-K filed on November 13, 2019
4.9	Form of November 2019 Placement Agent's Warrant	Incorporated by reference to Exhibit 4.4 to the registrant's current report on Form 8-K filed on November 13, 2019
4.10	Form of December 2019 Warrant	Incorporated by reference to Exhibit 4.1 to the registrant's current report on Form 8-K filed on December 13, 2019
4.11	Form of December 2019 Placement Agent's Warrant	Incorporated by reference to Exhibit 4.2 to the registrant's current report on Form 8-K filed on December 13, 2019
5.1	Opinion of Dechert LLP	Filed herewith
10.1	Employment Agreement, dated as of September 6, 2016, by and between David G. Kalergis and Diffusion Pharmaceuticals Inc.*	Incorporated by reference to Exhibit 10.1 to the registrant's current report on Form 8-K as filed on September 8, 2016
10.4	Amended and Restated Employment Agreement, dated as of September 21, 2018, by and between William Karl Hornung and Diffusion Pharmaceuticals Inc.*	Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed September 27, 2018.
10.5	Diffusion Pharmaceuticals Inc. 2015 Equity Incentive Plan*	Incorporated by reference to Exhibit 10.2 to the registrant's current report on Form 8-K as filed on June 18, 2015

10.6	Amendment No. 1 to Diffusion Pharmaceuticals Inc. 2015 Equity Incentive Plan*	Incorporated by reference to Appendix B to the registrant's definitive proxy statement on Schedule 14A filed on June 10, 2016
10.7	Form of Diffusion Pharmaceuticals Inc. Stock Option Award Agreement*	Incorporated by reference to Exhibit 10.5 to the registrant's annual report on Form 10-K for the year ended December 31, 2017
10.8	Form of Diffusion Pharmaceuticals LLC Stock Option Award Agreement*	Incorporated by reference to Exhibit 10.24 to the registrant's annual report on Form 10-K for the year ended December 31, 2015
10.9	Form of 2015 Incentive Stock Option Agreement under the Diffusion Pharmaceuticals Inc. 2015 Equity Incentive Plan*	Incorporated by reference to Exhibit 10.3 to the registrant's current report on Form 8-K filed on June 18, 2015
10.10	Form of 2015 Non-Statutory Stock Option Agreement under the Diffusion Pharmaceuticals Inc. 2015 Equity Incentive Plan*	Incorporated by reference to Exhibit 10.4 to the registrant's current report on Form 8-K filed on June 18, 2015
10.11	Form of Stock Option Agreement between the Company and certain former Executive Officers*	Incorporated by reference to Exhibit 10.12 to the registrant's annual report on Form 10-K for the fiscal year ended December 31, 2014

10.12	Form of Stock Option Agreement between the Company and certain former Directors*	Incorporated by reference to Exhibit 10.13 to the registrant's annual report on Form 10-K for the fiscal year ended December 31, 2014
10.13	Form of Indemnification Agreement between Diffusion Pharmaceuticals Inc. and each of its Directors and Officers*	Incorporated by reference to Exhibit 10.3 to the registrant's annual report on Form 10-K for the year ended December 31, 2015
10.14	Lease Agreement, dated March 31, 2017, by and between Diffusion Pharmaceuticals Inc. and One Carlton LLC	Incorporated by reference to Exhibit 10.4 to the registrant's quarterly report on Form 10-Q for the quarter ended March 31, 2017
10.15	Contingent Value Rights Agreement, dated as of January 8, 2016, by and between Diffusion Pharmaceuticals Inc. and Computershare, Inc., as Rights Agent	Incorporated by reference to Exhibit 10.2 to the registrant's current report on Form 8-K filed on January 8, 2016
21.1	Subsidiaries of Diffusion Pharmaceuticals Inc.	Incorporated by reference to Exhibit 21.1 to the registrant's annual report on Form 10-K for the year ended December 31, 2018
23.1	Consent of KPMG LLP, independent registered public accounting firm	Filed herewith
23.2	Consent of Dechert LLP	Included in Exhibit 5.1 hereto
24.1	Powers of Attorney	Included on the signature pages hereto

* A management contract or compensatory plan or arrangement.

SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Charlottesville, Virginia, on the 20th day of December, 2019.

Diffusion Pharmaceuticals Inc.

By: /s/ David G. Kalergis
David G. Kalergis
Chief Executive Officer (Principal Executive Officer)

POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints David G. Kalergis and William K. Hornung, and each of them, as his true and lawful attorneys-in-fact and agents, each with the full power of substitution, for him and in his name, place or stead, in any and all capacities, to sign any and all amendments to this registration statement (including post-effective amendments), and to sign any registration statement for the same offering covered by this registration statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act, and all post-effective amendments thereto, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

<u>SIGNATURE</u>	<u>TITLE</u>	<u>DATE</u>
<u>/s/ David G. Kalergis</u> David G. Kalergis	Chief Executive Officer and Chairman of the Board (Principal Executive Officer)	December 20, 2019
<u>/s/ William K. Hornung</u> William K. Hornung	Chief Financial Officer (Principal Financial & Accounting Officer)	December 20, 2019
<u>/s/ Robert Adams</u> Robert Adams	Director	December 20, 2019
<u>/s/ John L. Gainer</u> John L. Gainer, Ph.D.	Director	December 20, 2019
<u>/s/ Mark T. Giles</u> Mark T. Giles	Director	December 20, 2019
<u>/s/ Alan Levin</u> Alan Levin	Director	December 20, 2019



1095 Avenue of the Americas
New York, NY 10036-6797
+1 212 698 3500 Main
+1 212 698 3599 Fax
www.dechert.com

December 20, 2019

Diffusion Pharmaceuticals Inc.
1317 Carlton Avenue, Suite 200
Charlottesville, VA 22902

Re: Diffusion Pharmaceuticals Inc.

Dear Ladies and Gentlemen:

We have acted as counsel to Diffusion Pharmaceuticals Inc., a Delaware corporation (the "Company"), in connection with the preparation and filing by the Company of a Registration Statement on Form S-1 (the "Registration Statement"), including the prospectus constituting a part thereof (the "Prospectus"), with the U.S. Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Act"), on or about the date hereof, with respect to the resale from time to time by the selling stockholders set forth in the Registration Statement (the "Selling Stockholders") of up to an aggregate of 6,580,126 shares (the "Warrant Shares") of the Company's common stock, par value \$0.001 per share ("Common Stock"), issuable upon the exercise of the Investor Warrants (as defined in the Registration Statement) and the PA Warrants (as defined in the Registration Statement). This opinion letter is being furnished to the Company in accordance with the requirements of Item 601(b)(5) under Regulation S-K of the Act, and we express no opinion herein as to any matter other than as to the legality of the Common Stock.

In rendering the opinion expressed below, we have examined and relied on originals or copies, certified or otherwise identified to our satisfaction, of such agreements, corporate records and other instruments and such documents, certificates and receipts of public officials, certificates of officers and other representatives of the Company and others, and such other documents as we have deemed necessary or appropriate as a basis for rendering the opinion set forth below, including the following documents:

- (i) the Registration Statement;
 - (ii) the Prospectus;
 - (iii) the Company's Certificate of Incorporation, as originally filed with the Secretary of State of the State of Delaware on June 17, 2015, as amended from time to time through the date hereof (as amended, the "Certificate of Incorporation");
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- (iv) the Company's Amended and Restated Bylaws effective as of January 8, 2016 (the "Bylaws");
- (v) a certificate of good standing with respect to the Company issued by the Secretary of State of the State of Delaware, dated December 12, 2019; and
- (vi) the resolutions of the board of directors of the Company (the "Board of Directors"), relating to, among other things, the authorization and approval of the preparation and filing of the Registration Statement, certified as of the date hereof by an officer of the Company.

As to the facts upon which this opinion is based, we have relied upon certificates of public officials and certificates and written statements of officers, directors, employees and representatives of, and accountants for, the Company and we have assumed in this regard the truthfulness of such certifications and statements. We have not independently established the facts so relied on.

In our examination, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as original documents, the conformity to original documents of all documents submitted to us as copies, the legal capacity of natural persons who are signatories to the documents examined by us and the legal power and authority of all persons signing on behalf of the parties to all documents (other than the Company). We have further assumed that there has been no oral modification of, or amendment or supplement (including any express or implied waiver, however arising) to, any of the agreements, documents or instruments used by us to form the basis of the opinion expressed below.

On the basis of the foregoing and such examination of law as we have deemed necessary, and subject to the assumptions and qualifications set forth in this letter, we are of the opinion that the Warrant Shares, when issued upon exercise of the Warrants in accordance with their respective terms, will be validly issued, fully paid and non-assessable.

The opinion set forth in this letter relates only to the Federal laws of the United States of America, the laws of the State of New York, and, to the extent relevant, the General Corporation Law of the State of Delaware (the "DGCL"). We express no opinion concerning the laws of any other jurisdiction, and we express no opinion concerning any state securities or "blue sky" laws, rules or regulations, or any federal, state, local or foreign laws, rules or regulations relating to the offer and/or sale of the Warrant Shares.

The opinion expressed herein is based upon the law as in effect and the documentation and facts known to us on the date hereof. We have not undertaken to advise you of any subsequent changes in the law or of any facts that hereafter may come to our attention.

This opinion letter has been prepared for your use solely in connection with the Registration Statement. We assume no obligation to advise you of any changes in the foregoing subsequent to the effectiveness of the Registration Statement.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and to the reference to this firm under the caption "Legal Matters" in the prospectus that forms a part of the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Dechert LLP

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Diffusion Pharmaceuticals Inc.:

We consent to the use of our report incorporated by reference herein and to the reference to our firm under the heading “Experts” in the prospectus.

Our report dated March 19, 2019 contains an explanatory paragraph that states that the Company has suffered recurring losses from operations, has limited resources available to fund current research and development activities, and will require substantial additional financing to continue to fund its research and development activities that raise substantial doubt about its ability to continue as a going concern. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ KPMG LLP

McLean, Virginia
December 20, 2019