

LA JOLLA PHARMACEUTICAL CO

Form 424B5

March 16, 2018

Table of Contents

Filed pursuant to Rule 424(b)(5)
Registration Statement No. 333-221198

PROSPECTUS SUPPLEMENT

(To Prospectus dated November 21, 2017)

3,400,000 Shares

Common Stock

We are offering 3,400,000 shares of our common stock.

Our common stock is listed on the Nasdaq Capital Market under the symbol LJPC. On March 14, 2018, the last reported sale price per share of our common stock was \$29.84 per share.

Investing in our securities involves certain risks. See Risk Factors beginning on Page S-9 of this prospectus supplement and in the accompanying prospectus, and in the other documents that are incorporated by reference and any related free writing prospectus, for certain risks you should consider. You should read the entire prospectus supplement and the accompanying prospectus, including any information incorporated by reference, carefully before you make your investment decision.

	PER SHARE	TOTAL
Public Offering Price	\$ 29.50	\$ 100,300,000
Underwriting Discounts and Commissions ⁽¹⁾	\$ 1.39	\$ 4,726,000
Proceeds to La Jolla Pharmaceutical Company, Before Expenses	\$ 28.11	\$ 95,574,000

(1) We refer you to Underwriting beginning on page S-11 for additional information regarding underwriting discounts and commissions.

The underwriter may also exercise its option to purchase up to an additional 510,000 shares of common stock from us, for 30 days after the date of this prospectus supplement.

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

The shares will be ready for delivery on or about March 19, 2018.

Sole Book-Running Manager

Cowen

Prospectus Supplement dated March 14, 2018.

Table of Contents

TABLE OF CONTENTS

	PAGE
PROSPECTUS SUPPLEMENT	
<u>ABOUT THIS PROSPECTUS SUPPLEMENT</u>	S-1
<u>NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	S-2
<u>PROSPECTUS SUMMARY</u>	S-4
<u>THE OFFERING</u>	S-8
<u>RISK FACTORS</u>	S-9
<u>USE OF PROCEEDS</u>	S-10
<u>UNDERWRITING</u>	S-11
<u>LEGAL MATTERS</u>	S-16
<u>EXPERTS</u>	S-17
<u>INFORMATION INCORPORATED BY REFERENCE</u>	S-18
<u>WHERE YOU CAN FIND ADDITIONAL INFORMATION</u>	S-19
PROSPECTUS	
<u>ABOUT THIS PROSPECTUS</u>	1
<u>SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	2
<u>ABOUT THE COMPANY</u>	3
<u>RISK FACTORS</u>	4
<u>USE OF PROCEEDS</u>	5
<u>RATIO OF EARNINGS TO FIXED CHARGES</u>	6
<u>SECURITIES WE MAY OFFER</u>	7
<u>PLAN OF DISTRIBUTION</u>	14
<u>EXPERTS</u>	17
<u>LEGAL MATTERS</u>	17
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	17
<u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u>	18

Table of Contents

You should rely only on the information contained in this prospectus supplement and the accompanying prospectus, including any information incorporated by reference, and in any free writing prospectus that we have authorized for use in connection with this offering. We have not, and the underwriter has not, authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. You should not assume that the information contained in this prospectus supplement and the accompanying prospectus, or in any free writing prospectus that we have authorized for use in connection with this offering, is accurate as of any date other than the date of those respective documents, or that information contained in any document incorporated by reference is accurate as of any date other than the date of the document incorporated by reference. Our business, financial condition, results of operations and prospects may have changed since those dates. We are not, and the underwriter is not, making offers to sell these securities in any jurisdiction in which an offer or solicitation is not authorized or permitted or in which the person making such offer or solicitation is not qualified to do so or to any person to whom it is unlawful to make such an offer or solicitation. You should read this prospectus supplement, the accompanying prospectus, including any information incorporated by reference, and any free writing prospectus that we have authorized for use in connection with this offering, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the sections entitled *Where You Can Find Additional Information* and *Information Incorporated by Reference*.

Table of Contents

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus form part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the SEC) using a shelf registration process. This document contains two parts. The first part consists of this prospectus supplement, which provides you with specific information about this offering. The second part, the accompanying prospectus, provides more general information, some of which may not apply to this offering. Generally, when we refer only to the prospectus, we are referring to both parts combined. This prospectus supplement may add, update or change information contained in the accompanying prospectus. To the extent that any statement we make in this prospectus supplement is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus, including the documents incorporated by reference therein. Information in any document we subsequently file that is incorporated by reference shall modify or supersede the information in the prospectus supplement, the accompanying prospectus and documents incorporated by reference prior to such subsequent filing.

In this prospectus supplement, La Jolla, the Company, we, us, and our and similar terms refer to La Jolla Pharmaceutical Company, a California corporation. References to our common stock refer to the common stock of La Jolla Pharmaceutical Company.

All references in this prospectus supplement to our financial statements include, unless the context indicates otherwise, the related notes.

The industry and market data and other statistical information contained in this prospectus supplement, the accompanying prospectus and the documents we incorporate by reference are based on management's own estimates, independent publications, and reports by market research firms or other published independent sources, and, in each case, are believed by management to be reasonable estimates. Although we believe these sources are reliable, we have not independently verified the information.

Table of Contents

NOTE REGARDING FORWARD LOOKING STATEMENTS

This prospectus supplement contains forward-looking statements within the meaning of the federal securities laws. We make such forward-looking statements pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 and other federal securities laws. You can identify forward-looking statements by the use of the words believe, expect, anticipate, intend, estimate, project, will, should, may, plan, assume and other expressions that predict or indicate future events and trends and which do not relate to historical matters. You should not unduly rely on forward-looking statements, because they involve known and unknown risks, uncertainties and other factors, some of which are beyond our control. These risks, uncertainties and other factors may cause our actual results, performance or achievements to be materially different from the anticipated future results, performance or achievements expressed or implied by the forward-looking statements.

Factors that might cause these differences include the following:

our ability to successfully commercialize, market and achieve market acceptance of GIAPREZA (angiotensin II), formerly known as LJPC-501, and other product candidates, including our positioning relative to competing products;

our ability to meet the demand for GIAPREZA in a timely manner;

any limitations or unfavorable warning or cautionary language that the U.S. Food and Drug Administration (FDA) may ultimately impose on the label for GIAPREZA;

potential market sizes for our products, including the market for the treatment of septic or other distributive shock;

the anticipated treatment of future data by the FDA, European Medicines Agency (EMA) or other regulatory authorities, including whether such data will be sufficient for approval of GIAPREZA in the EMA or for approval of LJPC-401 by either the FDA or the EMA;

the cost of producing and selling GIAPREZA;

unforeseen safety issues from the administration of product and product candidates in patients;

the timing, costs, conduct and outcome of preclinical studies and clinical trials;

the success of future development activities for LJPC-401;

the risk that our clinical trials with our product candidates may not be successful in evaluating their safety and tolerability or providing evidence of efficacy;

the successful and timely completion of clinical trials;

our plans and timing with respect to seeking regulatory approvals and uncertainties regarding the regulatory process;

the availability of funds and resources to pursue our research and development projects, including clinical trials with our product candidates;

uncertainties associated with obtaining and enforcing patents and the availability of regulatory exclusivity;

the potential commercialization of any of our product candidates that receive regulatory approval;

the uncertainty of obtaining raw materials or finished products supplies from third parties (some of which may be single sourced) and other related supply and manufacturing difficulties, interruptions and delays;

our estimates for future performance;

our ability to hire and retain our key employees;

S-2

Table of Contents

our estimates regarding our capital requirements and our needs for, and ability to obtain, additional financing; and

the expected duration over which the Company's cash balances will fund its operations.

Any forward-looking statements in this prospectus supplement reflect our current views with respect to future events or to our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under the section entitled "Risk Factors" in this prospectus supplement, the accompanying prospectus supplement and elsewhere in documents incorporated by reference herein. You should carefully review all of these factors. Given these uncertainties, you should not place undue reliance on these forward-looking statements. These forward-looking statements were based on information, plans and estimates as of the date of this prospectus supplement, and except as required by law, we assume no obligation to update any forward-looking statements to reflect changes in underlying assumptions or factors, new information, future events or other changes.

This prospectus supplement may also contain estimates, projections and other information concerning our industry, our business, and the markets for certain diseases, including data regarding the estimated size of those markets. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances reflected in this information.

Table of Contents

PROSPECTUS SUMMARY

*The following summary of our business highlights certain of the information contained elsewhere in or incorporated by reference into this prospectus supplement and the accompanying prospectus. Because this is only a summary, however, it does not contain all of the information that may be important to you. You should carefully read this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference, which are described under *Where You Can Find Additional Information* and *Information Incorporated By Reference* in this prospectus supplement and the accompanying prospectus. In particular, you should carefully consider the matters discussed in the section of this prospectus supplement titled *Risk Factors* and in the accompanying prospectus and periodic reports incorporated herein by reference.*

Our Company

We are a biopharmaceutical company focused on the discovery, development and commercialization of innovative therapies intended to significantly improve outcomes in patients suffering from life-threatening diseases.

On December 21, 2017, GIAPREZA (angiotensin II), formerly known as LJPC-501, was approved by the FDA as a vasoconstrictor to increase blood pressure in adults with septic or other distributive shock. GIAPREZA is our first commercial product.

LJPC-401, a clinical-stage investigational product, is our proprietary formulation of synthetic human hepcidin. LJPC-401 is being developed for the potential treatment of conditions characterized by iron overload, such as hereditary hemochromatosis, beta thalassemia, sickle cell disease and myelodysplastic syndrome.

GIAPREZA (angiotensin II)

GIAPREZA (angiotensin II), injection for intravenous infusion, was approved as a vasoconstrictor indicated to increase blood pressure in adults with septic or other distributive shock. Angiotensin II is the major bioactive component of the renin-angiotensin-aldosterone system (RAAS). The RAAS is one of three central regulators of blood pressure.

There are approximately 800,000 distributive shock cases in the U.S. each year. Of these cases, an estimated 90% are septic shock patients. Approximately 300,000 patients do not achieve adequate blood pressure response with initial vasopressor therapy and require additional therapy for low blood pressure. The Center for Disease Control estimates that approximately 250,000 people in the U.S. die each year from septic shock. The inability to achieve or maintain adequate blood pressure results in inadequate blood flow to the body's organs and tissue and is associated with a mortality rate exceeding most acute conditions requiring hospitalization.

In March 2015, we initiated a Phase 3 study of GIAPREZA in adult patients with septic or other distributive shock who remain hypotensive despite fluid and vasopressor therapy, known as the ATHOS-3 (Angiotensin II for the Treatment of High-Output Shock) Phase 3 study. In ATHOS-3, patients were randomized in a 1:1 fashion to receive either: (i) GIAPREZA plus standard-of-care vasopressors; or (ii) placebo plus standard-of-care vasopressors. Randomized patients received their assigned treatment via continuous intravenous infusion for up to 7 days. The primary efficacy endpoint was the percentage of patients with a mean arterial pressure (MAP) \geq 75 mmHg or a 10 mmHg increase from baseline MAP at three hours following the initiation of study treatment without an increase in standard-of-care vasopressors.

The ATHOS-3 Phase 3 study completed enrollment of 344 patients in the fourth quarter of 2016. In February 2017, we reported positive top-line results from ATHOS-3. In May 2017, the results of ATHOS-3 were published by The New England Journal of Medicine.

S-4

Table of Contents

The analysis of the primary efficacy endpoint, defined as the percentage of patients achieving a pre-specified target blood pressure response, was highly statistically significant: 23% of the 158 placebo-treated patients had a blood pressure response compared to 70% of the 163 GIAPREZA-treated patients ($p < 0.00001$). In addition, a trend toward longer survival was observed: 22% reduction in mortality risk through day 28 [hazard ratio=0.78 (0.57-1.07), $p=0.12$] for GIAPREZA-treated patients.

Throughout ATHOS-3, safety outcomes were followed by an independent Data Safety Monitoring Board (DSMB). The DSMB recommended that the study continue as originally planned. In this critically ill patient population: 92% of placebo-treated patients compared to 87% of GIAPREZA-treated patients experienced at least one adverse event (AE), and 22% of placebo-treated patients compared to 14% of GIAPREZA-treated patients discontinued treatment due to an adverse event. Although the percent of patients with AEs was similar between the two treatment arms, there was evidence of a potential for venous and arterial thrombotic and thromboembolic events in the patients treated with GIAPREZA compared to placebo-treated patients (AEs 13% v 5%; deep vein thrombosis serious AEs 1.8% v 0%).

In September 2017, an analysis from ATHOS-3 entitled "Baseline angiotensin levels and ACE effects in patients with vasodilatory shock treated with angiotensin II" was presented during the 30th European Society of Intensive Care Medicine Annual Congress. The pre-specified analysis showed that a relatively low angiotensin II state (as measured by the ratio of angiotensin I to angiotensin II) predicted increased mortality in patients with vasodilatory shock, suggesting that a low angiotensin II state is a negative prognostic indicator of outcomes. Furthermore, the analysis showed a statistically significant treatment effect of GIAPREZA compared to placebo on mortality in these patients with a relatively low angiotensin II state (relative risk reduction of 36%; HR=0.64; 95% CI: 0.41-1.00; $p=0.047$). In the complete ATHOS-3 dataset, the exploratory endpoint of mortality showed a strong mortality trend among all patients through day 28 (46% of patients treated with GIAPREZA, as compared to 54% of patients treated with placebo (HR 0.78; CI 0.57-1.07)).

In February 2018, results from a pre-specified analysis from the ATHOS-3 trial in patients with high severity of illness, defined as APACHE II score > 30 demonstrated 28-day mortality was 52% of patients treated with GIAPREZA compared with 71% in the placebo group (HR=0.62; 95% CI, 0.9, 0.98; $P=0.037$).

In March 2018, we reported results from the post-hoc analysis of 105 AKI patients in the ATHOS-3 trial. Survival through day 28 was 53% (95% CI: 38%-67%) for the GIAPREZA treated group compared to 30% (95% CI: 19%-41%) for the placebo group ($p=0.012$). By day 7, 38% (95% CI: 25%-54%) of patients in the GIAPREZA arm discontinued renal replacement therapy, compared with 15% (95% CI: 8%-27%) in the placebo group ($p=0.007$).

In September 2017, we reported that the EMA Committee for Medicinal Products for Human Use (CHMP) issued favorable Scientific Advice regarding the EU regulatory pathway for GIAPREZA. Based on this Advice, we intend to submit a Marketing Authorization Application (MAA) for GIAPREZA in the third quarter of 2018.

On December 21, 2017, the FDA approved GIAPREZA to increase blood pressure in adults with septic or other distributive shock. We are commercially launching GIAPREZA in the United States in March 2018 and are currently conducting a Phase 2 post-approval study in pediatric patients. In connection with the FDA's approval of GIAPREZA, the drug has been designated as a new chemical entity, which provides five years of market exclusivity in the United States.

LJPC-401

LJPC-401, a clinical-stage investigational product, is our proprietary formulation of synthetic human hepcidin. Hepcidin, an endogenous peptide hormone, is the body's naturally occurring regulator of iron

S-5

Table of Contents

absorption and distribution. In healthy individuals, hepcidin prevents excessive iron accumulation in vital organs, such as the liver and heart, where it can cause significant damage and even result in death. We are developing LJPC-401 for the potential treatment of iron overload, which occurs as a result of diseases such as hereditary hemochromatosis (HH), beta thalassemia, sickle cell disease (SCD) and myelodysplastic syndrome (MDS).

HH is a disease characterized by a genetic deficiency in hepcidin. HH is the most common genetic disease in Caucasians and causes liver cirrhosis, liver cancer, heart disease and/or failure, diabetes, arthritis and joint pain. The current standard treatment for HH is a blood removal procedure known as phlebotomy. Each phlebotomy procedure, which is usually conducted at a hospital, medical office or blood center, typically involves the removal of approximately a pint of blood. The required frequency of procedures varies by patient but often ranges from one to two times per week for an initial period after diagnosis and once every one to three months for life. Since most of the body's iron is stored in red blood cells, chronic removal of blood can effectively lower iron levels if a phlebotomy regimen is adhered to. However, phlebotomy procedures may cause and may be associated with pain, bruising and scarring at the venous puncture site, fatigue and dizziness during and following the procedure and disruption of daily activities. Furthermore, phlebotomy is not appropriate in patients with poor venous access, anemia or heart disease.

Beta thalassemia, SCD and MDS are genetic diseases of the blood that can cause life-threatening anemia and usually require frequent and life-long blood transfusions. These blood transfusions cause excessive iron accumulation in the body, which is toxic to vital organs, such as the liver and heart. In addition, the underlying anemia causes excessive iron accumulation independent of blood transfusions.

In 2015, the EMA Committee for Orphan Medicinal Products (COMP) designated LJPC-401 as an orphan medicinal product for the treatment of beta thalassemia intermedia and major. In 2016, the EMA COMP designated LJPC-401 as an orphan medicinal product for the treatment of SCD.

In September 2016, we reported positive results from a Phase 1 study of LJPC-401 in patients at risk of iron overload suffering from HH, thalassemia and SCD. In this study, single, escalating doses of LJPC-401 were associated with a dose-dependent, statistically significant reduction in serum iron. LJPC-401 was well-tolerated with no dose-limiting toxicities. Injection-site reactions were the most commonly reported adverse event and were all mild or moderate in severity, self-limiting and fully resolved.

In September 2016, we reached agreement with the EMA on the design of a pivotal study of LJPC-401 for the treatment of beta thalassemia patients suffering from iron overload, a major unmet need in an orphan patient population. This study, which we refer to as LJ401-BT01, was initiated in December 2017. LJ401-BT01 is designed to enroll approximately 100 patients across 9 countries, including the U.S. Patients will be randomized 1:1 to receive either: (i) weekly subcutaneous injections of LJPC-401, while continuing standard-of-care chelation therapy (LJPC-401 treatment arm); or (ii) a continuation of standard-of-care chelation therapy only (observation arm). After 6 months of treatment, patients randomized to the observation arm will cross over to receive LJPC-401 (plus standard-of-care chelation therapy) for 6 months, while patients randomized to the LJPC-401 treatment arm will continue with LJPC-401 (plus standard-of-care chelation therapy) for an additional 6 months (for a total of one year). The primary efficacy endpoint of this study is the change in iron content in the heart after 6 months, as measured by cardiac magnetic resonance imaging (MRI). If this study is successful, we would anticipate filing an MAA for LJPC-401 in Europe.

In December 2017, we announced the initiation of LJ401-HH01, a Phase 2 clinical study of LJPC-401 in patients with HH. LJ401-HH01 is a multinational, multicenter, randomized, placebo-controlled, double-blind, Phase 2 study that is designed to evaluate the safety and efficacy of LJPC-401 as a treatment for HH. Approximately 60 patients will be randomized to receive weekly subcutaneous injections of either LJPC-401 or placebo for 12 weeks. The primary

efficacy endpoint of the study is the change in transferrin saturation, a

S-6

Table of Contents

standard measurement of iron levels in the body and one of the two key measurements used to detect iron overload, from baseline to end of treatment. Secondary efficacy endpoints include: (i) the change in serum ferritin, the other key measurement used to detect iron overload, from baseline to end of treatment; and (ii) the requirement for and frequency of phlebotomy procedures used during the study.

Corporate Information

La Jolla was incorporated in Delaware in 1989 and reincorporated in California in 2012. Our principal office is located at 4550 Towne Centre Court, San Diego, CA 92121. Our telephone number is (858) 207-4264. Our website address is www.ljpc.com. We make our periodic and current reports available on our Internet website, free of charge, as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. No portion of our website is incorporated by reference into this prospectus supplement. The Company files annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document filed by the Company at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference room. The Company's filings with the SEC are also available to the public on the SEC's Internet web site at <http://www.sec.gov>. *Additional information regarding the Company, including our audited financial statements and descriptions of our business, is contained in the documents incorporated by reference in this prospectus supplement. See "Where You Can Find Additional Information" and "Information Incorporated by Reference" in this prospectus supplement and the accompanying prospectus. Our common stock is listed on the Nasdaq Capital Market under the symbol LJPC.*

Table of Contents

THE OFFERING

Common Stock we are Offering Pursuant to 3,400,000 shares
this Prospectus Supplement

Common Stock to be Outstanding after this 25,567,529 shares
Offering

Option to Purchase Additional Shares We have granted the underwriter an option for a period of 30 days from the date of this prospectus supplement to purchase up to 510,000 additional shares.

Use of Proceeds We intend to use the net proceeds of this offering primarily for general corporate purposes, which include, but are not limited to, the commercialization and marketing of GIAPREZA, funding our ongoing and future clinical trials of LJPC-401, preclinical development work and other administrative expenses or other product development activities. See Use of Proceeds.

Nasdaq Capital Market Symbol LJPC

Risk Factors This investment involves a high degree of risk. You should read the Risk Factors section of this prospectus supplement and the accompanying prospectus and our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q, incorporated by reference herein, for a discussion of factors to consider carefully before deciding to invest in shares of our common stock.

The number of shares of common stock shown above to be outstanding after this offering is based on the 22,167,529 shares outstanding as of December 31, 2017 and excludes:

6,037,302 shares of our common stock subject to options outstanding as of December 31, 2017 having a weighted average exercise price of \$24.19 per share;

1,875,732 shares of our common stock that have been reserved for issuance in connection with future grants under our 2013 Equity Plan (the 2013 Plan) as of December 31, 2017;

Edgar Filing: LA JOLLA PHARMACEUTICAL CO - Form 424B5

93,013 shares of our common stock subject to warrants outstanding as of December 31, 2017 having a weighted average price of \$10.08 per share; and

7,517,410 shares of our common stock that have been reserved for issuance upon conversion of outstanding preferred stock as of December 31, 2017.

If the underwriter's option to purchase additional shares is exercised in full, we will issue and sell an additional 510,000 shares of our common stock and will have 26,077,529 shares outstanding after the offering.

Except as otherwise noted, all information in this prospectus supplement assumes no exercise of the underwriter's option to purchase additional shares.

S-8

Table of Contents

RISK FACTORS

*An investment in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should consider carefully the risks described below and discussed under the sections captioned **Risk Factors** contained in our Annual Report on Form 10-K for the year ended December 31, 2017, and any subsequent Quarterly Reports on Form 10-Q, which are incorporated by reference herein in their entirety, together with other information contained in or incorporated by reference in this prospectus supplement and in any free writing prospectus that we have authorized for use in connection with this offering. If any of these risks actually occurs, our business, financial condition, results of operations or prospects could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment.*

Risks Relating to this Offering

We will have broad discretion in the use of the net proceeds to us from this offering; we may not use the offering proceeds that we receive effectively.

Our management will have broad discretion in the application of the net proceeds to us from this offering, including for any of the purposes described in the section entitled **Use of Proceeds**, and you will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds to us from this offering, their ultimate use may vary from their currently intended use. The failure by our management to apply these funds effectively could harm our business. Pending their use, we may invest the net proceeds to us from this offering in investment-grade, interest-bearing securities. These investments may not yield a favorable return to our stockholders.

Table of Contents

USE OF PROCEEDS

We estimate that the net proceeds from the sale of the shares of common stock that we are offering will be approximately \$95.5 million, or approximately \$109.8 million if the underwriter exercises in full its option to purchase up to 510,000 additional shares of common stock, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

We intend to use the net proceeds from the sale of the shares of common stock offered hereby primarily for general corporate purposes, which include, but are not limited to, the commercialization and marketing of GIAPREZA, funding our ongoing and future clinical trials of LJPC-401, preclinical development work and other administrative expenses.

Pending the use of the net proceeds, we intend to invest the net proceeds in short-term, interest-bearing, investment-grade securities.

S-10

Table of Contents**UNDERWRITING**

We have entered into an underwriting agreement with Cowen and Company, LLC with respect to the shares of common stock being offered hereby. Subject to the terms and conditions set forth in an underwriting agreement among us and the underwriter, the underwriter has agreed to purchase from us 3,400,000 shares of our common stock.

The underwriting agreement provides that the obligations of the underwriter are subject to certain conditions precedent and that the underwriter has agreed to purchase all of the shares sold under the underwriting agreement if any of these shares are purchased, other than those shares covered by the option to purchase additional shares described below.

We have agreed to indemnify the underwriter against certain liabilities, including liabilities under the Securities Act of 1933, as amended, and to contribute to payments the underwriter may be required to make in respect of those liabilities.

The underwriter is offering the shares, subject to prior sale, when, as and if issued to and accepted by it, subject to approval of legal matters by its counsel, including the validity of the shares, and other conditions contained in the underwriting agreement. The underwriter reserves the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commissions and Discounts.

The following table shows the public offering price, underwriting discount and proceeds, before expenses to us. These amounts are shown assuming both no exercise and full exercise of the underwriter's option to purchase additional shares.

We estimate that the total expenses of the offering, excluding underwriting discount, will be approximately \$100,000 and are payable by us.

	Per Share	Total Without Over- Allotment	With Over Allotment
Public offering price	\$ 29.50	\$ 100,300,000	\$ 115,345,000
Underwriting discount	\$ 1.39	\$ 4,726,000	\$ 5,434,900
Proceeds, before expenses, to Company	\$ 28.11	\$ 95,574,000	\$ 109,919,100

The underwriter proposes to offer the shares of common stock to the public at the public offering price set forth on the cover of this prospectus. The underwriter may offer the shares of common stock to securities dealers at the public offering price less a concession not in excess of \$0.834 per share. If all of the shares are not sold at the public offering price, the underwriter may change the offering price and other selling terms.

Option to Purchase Additional Shares

We have granted to the underwriter an option to purchase up to 510,000 additional shares of common stock at the public offering price, less the underwriting discount. This option is exercisable for a period of 30 days.

No Sales of Similar Securities

We have agreed, subject to limited exceptions, that we will not (1) sell, offer, contract or grant any option to sell (including any short sale), pledge, transfer, establish an open put equivalent position within the meaning of Rule 16a-1(h) under the Securities Exchange Act of 1934, as amended (the Exchange Act), (2) otherwise dispose of any shares of common stock, options or warrants to acquire shares of common stock, or

S-11

Table of Contents

securities exchangeable or exercisable for or convertible into shares of common stock currently or hereafter owned either of record or beneficially, (3) or file with the Securities and Exchange Commission a registration statement under the Securities Act of 1933, as amended, relating to any shares of our common stock, or securities exchangeable or exercisable for or convertible into shares of common stock, or (4) publicly announce an intention to do any of the foregoing for a period of 90 days after the date of this prospectus supplement without the prior written consent of Cowen and Company, LLC.

Our directors and executive officers have entered into lock-up agreements with the underwriter prior to the commencement of this offering pursuant to which each of these persons, with limited exceptions, for a period of 90 days after the date of this prospectus supplement, may not, without the prior written consent of Cowen and Company, LLC: (1) sell, offer, contract or grant any option to sell (including any short sale), pledge, transfer, establish an open put equivalent position within the meaning of Rule 16a-1(h) under the Exchange Act, (2) otherwise dispose of any shares of common stock, options or warrants to acquire shares of common stock, or securities exchangeable or exercisable for or convertible into shares of common stock currently or hereafter owned either of record or beneficially, or (3) publicly announce an intention to do any of the foregoing.

Except for customary lock-up exceptions there are no existing agreements between the underwriter and any of our shareholders who will execute a lock-up agreement, providing consent to the sale of shares prior to the expiration of the lock-up period; provided, however, that the lock-up agreement for Kevin Tang, the Chairman of our Board of Directors, permits him to make gifts of securities subject to the lock-up agreement without requiring the recipient of such securities to execute a similar lock-up agreement.

NASDAQ Capital Market Listing

Our common stock is listed on The NASDAQ Capital Market under the symbol LJPC.

Price Stabilization

In connection with this offering, the underwriter may engage in stabilizing transactions, overallotment transactions, syndicate covering transactions, penalty bids and purchases to cover positions created by short sales.

Stabilizing transactions permit bids to purchase shares of common stock so long as the stabilizing bids do not exceed a specified maximum, and are engaged in for the purpose of preventing or retarding a decline in the market price of the common stock while the offering is in progress.

Overallotment transactions involve sales by the underwriter of shares of common stock in excess of the number of shares the underwriter are obligated to purchase. This creates a syndicate short position which may be either a covered short position or a naked short position. In a covered short position, the number of shares over-allotted by the underwriter is not greater than the number of shares that it may purchase in the option to purchase additional shares. In a naked short position, the number of shares involved is greater than the number of shares in the option to purchase additional shares. The underwriter may close out any short position by exercising its option to purchase additional shares and/or purchasing shares in the open market.

Syndicate covering transactions involve purchases of common stock in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of shares to close out the short position, the underwriter will consider, among other things, the price of shares available for purchase in the open market as compared with the price at which they may purchase shares through exercise of the option to purchase additional shares. If the underwriter sells more shares than could be covered by exercise of the option to purchase additional shares and, therefore, have a naked short position, the position can be closed out only by buying shares in the open market. A naked short position is more likely to be created if the underwriter is concerned that after pricing there could be downward pressure on the price of the shares in the open market that could adversely affect investors who purchase in the offering.

S-12

Table of Contents

These stabilizing transactions and syndicate covering transactions may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock in the open market may be higher than it would otherwise be in the absence of these transactions. Neither we nor the underwriter make any representation or prediction as to the effect that the transactions described above may have on the price of our common stock. These transactions may be effected on the Nasdaq Stock Market, in the over-the-counter market or otherwise and, if commenced, may be discontinued at any time.

Passive Market Making

In connection with this offering, underwriter and selling group members may engage in passive market making transactions in our common stock on the Nasdaq Stock Market in accordance with Rule 103 of Regulation M under the Exchange Act during a period before the commencement of offers or sales of common stock and extending through the completion of the distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker's bid, such bid must then be lowered when specified purchase limits are exceeded.

Electronic Distribution

A prospectus in electronic format may be made available on the websites maintained by the underwriter and the underwriter may distribute prospectuses electronically. The underwriter may agree to allocate a number of shares to its online brokerage account holders. Internet distributions will be allocated by the underwriter that will make internet distributions on the same basis as other allocations. Other than the prospectus in electronic format, the information on these websites is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been approved or endorsed by us or the underwriter in its capacity as underwriter, and should not be relied upon by investors.

Other Relationships

The underwriter and its affiliates have provided, and may in the future provide, various investment banking, commercial banking and other financial services for us and our affiliates for which they have received, and may in the future receive, customary fees.

Notice to Investors in Canada

The common stock may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 *Prospectus Exemptions* or subsection 73.3(1) of the *Securities Act* (Ontario), and are permitted clients, as defined in National Instrument 31-103 *Registration Requirements, Exemptions and Ongoing Registrant Obligations*. Any resale of the common stock must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus supplement (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 *Underwriting Conflicts* (NI 33-105), the underwriter is not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

S-13

Table of Contents

Notice to Investors in the United Kingdom

The underwriter has represented and agreed that:

it has not made or will not make an offer of the securities to the public in the United Kingdom within the meaning of section 102B of the Financial Services and Markets Act 2000 (as amended) (FSMA) except to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities or otherwise in circumstances which do not require the publication by us of a prospectus pursuant to the Prospectus Rules of the Financial Services Authority (FSA);

it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of section 21 of FSMA) to persons who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 or in circumstances in which section 21 of FSMA does not apply to us; and

it has complied with and will comply with all applicable provisions of FSMA with respect to anything done by it in relation to the securities in, from or otherwise involving the United Kingdom.

Notice to Investors in Switzerland

The securities will not be offered, directly or indirectly, to the public in Switzerland and this prospectus does not constitute a public offering prospectus as that term is understood pursuant to article 652a or 1156 of the Swiss Federal Code of Obligations.

Notice to Investors in the European Economic Area

In relation to each Member State of the European Economic Area (the "EEA") which has implemented the European Prospectus Directive (each, a "Relevant Member State"), an offer of our shares may not be made to the public in a Relevant Member State other than:

to any legal entity which is a qualified investor, as defined in the European Prospectus Directive;

to fewer than 150 natural or legal persons (other than qualified investors as defined in the European Prospectus Directive), subject to obtaining the prior consent of the relevant dealer or dealers nominated by us for any such offer, or;

in any other circumstances falling within Article 3(2) of the European Prospectus Directive, provided that no such offer of our shares shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the European Prospectus Directive or supplement prospectus pursuant to Article 16 of the European Prospectus

Directive and each person who initially acquires any shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with the underwriter and with us that it is a qualified investor within the meaning of the law in that Relevant Member State implementing Article 2(1)(e) of the European Prospectus Directive.

In the case of any shares being offered to a financial intermediary as that term is used in Article 3(2) of the European Prospectus Directive, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer or any shares to the public other than their offer or resale in a

S-14

Table of Contents

Relevant Member State to qualified investors as so defined or in circumstances in which the prior consent of the representatives has been obtained to each such proposed offer or resale.

For the purposes of this description, the expression an offer to the public in relation to the securities in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to decide to purchase or subscribe for the securities, as the expression may be varied in that Relevant Member State by any measure implementing the European Prospectus Directive in that member state, and the expression European Prospectus Directive means Directive 2003/71/EC (and amendments hereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State) and includes any relevant implementing measure in each Relevant Member State. The expression 2010 PD Amending Directive means Directive 2010/73/EU.

S-15

Table of Contents

LEGAL MATTERS

Gibson, Dunn & Crutcher LLP of San Francisco, California will pass upon the validity of the shares of common stock offered hereby. Latham & Watkins LLP of San Diego, California is counsel to the underwriter in connection with this offering.

S-16

Table of Contents

EXPERTS

The consolidated financial statements of La Jolla Pharmaceutical Company as of December 31, 2017 and 2016 and for each of the years in the three-year period ended December 31, 2017 and the effectiveness of internal control over financial reporting as of December 31, 2017 incorporated in this Prospectus Supplement by reference from the La Jolla Pharmaceutical Company Annual Report on Form 10-K for the year ended December 31, 2017 have been audited by Squar Milner LLP, an independent registered public accounting firm, as stated in their reports thereon (which report on the consolidated financial statements expresses an unqualified opinion and includes an explanatory paragraph relating to uncertainty as to the Company's ability to continue as a going concern), incorporated herein by reference, and have been incorporated in this Prospectus Supplement and Registration Statement in reliance upon such reports and upon the authority of such firm as experts in accounting and auditing.

S-17

Table of Contents

INFORMATION INCORPORATED BY REFERENCE

The SEC allows the Company to incorporate by reference the information that is filed by the Company with the SEC, which means that the Company can disclose important information to you by referring you to those documents. The documents incorporated by reference are:

1. The Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017;
2. The Company's Definitive Proxy Statement on Schedule 14A, filed on July 31, 2017;
3. The Company's Current Report on Form 8-K filed with the SEC on January 30, 2018; and
4. The description of the Company's common stock contained in that certain registration statement on Form 8-A (as amended) filed with the SEC on October 27, 2014 pursuant to Section 12(b) of the Exchange Act, including any amendment or report filed for the purpose of updating that description.

All documents we file with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, except as to any portion of any report or documents that is not deemed filed under such provisions, on or after the date of this prospectus supplement until the earlier of the date on which all of the securities registered hereunder have been sold or the registration statement of which this prospectus supplement is a part has been withdrawn, shall be deemed incorporated by reference in this prospectus supplement and to be a part of this prospectus supplement from the date of filing of those documents.

Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded, for purposes of this prospectus supplement, to the extent that a statement contained in or omitted from this prospectus supplement, or in any other subsequently filed document that also is or is deemed to be incorporated by reference herein, modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement. Nothing in this prospectus supplement shall be deemed to incorporate information furnished but not filed with the SEC pursuant to Item 2.02 or Item 7.01 of Form 8-K.

Upon written or oral request, we will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus supplement is delivered, upon such person's written or oral request, a copy of any and all of the information incorporated by reference in this prospectus supplement, other than exhibits to such documents, unless such exhibits are specifically incorporated by reference into the information that this prospectus supplement incorporates. Requests should be directed to the Secretary at La Jolla Pharmaceutical Company, 4550 Towne Centre Court, San Diego, CA 92121, telephone number (858) 207-4264. You may also find these documents in the Investor Relations section of our website, www.ljpc.com. The information on our website is not incorporated into this prospectus supplement. We have authorized no one to provide you with any information that differs from that contained in this prospectus supplement. Accordingly, you should not rely on any information that is not contained in this prospectus supplement. You should not assume that the information in this prospectus supplement is accurate as of any date other than the date of the front cover of this prospectus supplement.

Table of Contents

WHERE YOU CAN FIND ADDITIONAL INFORMATION

The Company is subject to the informational requirements of the Exchange Act, and in accordance therewith, files annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document filed by the Company at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference room. The Company's filings with the SEC are also available to the public at the SEC's Internet web site at <http://www.sec.gov>. Statements contained in this prospectus supplement as to the contents of any contract or other document are not necessarily complete, and in each instance we refer you to the copy of the contract or document filed as an exhibit to the registration statement, each such statement being qualified in all respects by such reference.

S-19

Table of Contents

PROSPECTUS

\$150,000,000

La Jolla Pharmaceutical Company

Common Stock

Preferred Stock

Debt Securities

Warrants

From time to time, we may offer common stock, preferred stock, debt securities or warrants, or a combination of any of these securities, at an aggregate initial offering price not to exceed \$150,000,000. The debt securities that we may offer may consist of senior debt securities or subordinated debt securities, in each case consisting of notes or other evidence of indebtedness in one or more series. The warrants that we may offer will consist of warrants to purchase any of the other securities that may be sold under this prospectus. The securities offered under this prospectus may be offered separately, together or in series separate, and in amounts, at prices and on terms to be determined at the time of sale. A prospectus supplement that will set forth the terms of the offering of any securities will accompany this prospectus.

We may offer these securities through agents, underwriters or dealers or directly to investors. See Plan of Distribution in this prospectus. Each prospectus supplement will provide the amount, price and terms of the plan of distribution relating to the securities to be sold pursuant to such prospectus supplement. We will set forth the names of any underwriters or agents in the accompanying prospectus supplement, as well as the net proceeds we expect to receive from such sale.

You should read this prospectus, the prospectus supplement and the documents incorporated by reference in this prospectus and any prospectus supplement carefully before you invest. This prospectus may not be used to offer or sell any of the common stock, preferred stock, debt securities or warrants unless accompanied by a prospectus supplement.

Our common stock is listed on the Nasdaq Capital Market under the symbol LJPC. On October 26, 2017, the last reported sale price of our common stock on the Nasdaq Capital Market was \$31.93 per share. Our principal executive offices are located at 4550 Towne Centre Court, San Diego, California 92121, and our telephone number is (858) 207-4264.

Investing in our securities involves a high degree of risk. You should carefully consider the Risk Factors beginning on page 4 before you invest in our securities.

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

The date of this prospectus is November 21, 2017

Table of Contents**TABLE OF CONTENTS**

	Page
<u>ABOUT THIS PROSPECTUS</u>	1
<u>SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	2
<u>ABOUT THE COMPANY</u>	3
<u>RISK FACTORS</u>	4
<u>USE OF PROCEEDS</u>	5
<u>RATIO OF EARNINGS TO FIXED CHARGES</u>	6
<u>SECURITIES WE MAY OFFER</u>	7
<u>PLAN OF DISTRIBUTION</u>	14
<u>EXPERTS</u>	17
<u>LEGAL MATTERS</u>	17
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	17
<u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u>	18

You should rely only on the information contained or incorporated by reference into this prospectus and any prospectus supplement or any free writing prospectus that we may provide to you. We have not authorized anyone to provide you with different information. You must not rely upon any unauthorized information or representation. You should not assume that the information contained in this prospectus or any applicable prospectus supplement is accurate as of any date other than the date on the front cover of the prospectus or the prospectus supplement or that the information contained in any document incorporated by reference is accurate as of any date other than the date of the document incorporated by reference. Our business, financial condition, results of operations and prospects may have changed since those dates. We are not making offers to sell the securities in any jurisdiction in which an offer or solicitation is not authorized or permitted or in which the person making such offer or solicitation is not qualified to do