

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

**SCHEDULE 14A
(RULE 14a-101)**

**Proxy Statement Pursuant to Section 14(a) of the
Securities Exchange Act of 1934**

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
- Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))
- Definitive Proxy Statement
- Definitive Additional Materials
- Soliciting Material Pursuant to §240.14a-12

RXi PHARMACEUTICALS CORPORATION

(Name of Registrant as Specified In Its Charter)

N/A

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

- No fee required.
- Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

(1) Title of each class of securities to which transaction applies:

(2) Aggregate number of securities to which transaction applies:

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

(4) Proposed maximum aggregate value of transaction:

(5) Total fee paid:

- Fee paid previously with preliminary materials.
- Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

(1) Amount Previously Paid:

(2) Form, Schedule or Registration Statement No.:

(3) Filing Party:

(4) Date Filed:



257 Simarano Drive, Suite 101
Marlborough, MA 01752

**NOTICE OF SPECIAL MEETING OF STOCKHOLDERS
To Be Held on April 14, 2016**

Dear Stockholder:

You are cordially invited to attend a special meeting of Stockholders (the "*Special Meeting*") of RXi Pharmaceuticals Corporation, a Delaware corporation (the "*Company*"), which will be held on April 14, 2016, at 11:00 a.m. local time, at the Company's offices, located at 257 Simarano Drive, Suite 101, Marlborough, Massachusetts 01752. Only stockholders who held stock at the close of business on the record date, February 24, 2016 (the "*Record Date*"), may vote at the Special Meeting, including any adjournment or postponement thereof.

At the Special Meeting, you will be asked to consider and vote upon:

- (1) an amendment to the Company's Amended and Restated Certificate of Incorporation, as amended (as amended from time to time, the "*Charter*"), to effect a reverse stock split of the shares of the Company's common stock, par value \$0.0001 per share (the "*common stock*"), at a ratio of not less than 1-for-2 and not greater than 1-for-40, with the exact ratio and effective time of the reverse stock split to be determined by the Board of Directors (the "*Reverse Stock Split*");
- (2) to authorize the adjournment of the Special Meeting, if necessary or appropriate, if a quorum is present, to solicit additional proxies if there are insufficient votes at the Special Meeting in favor of the Reverse Stock Split; and
- (3) the transaction of any other business that may properly come before the Special Meeting or any adjournment or postponement thereof.

The accompanying Proxy Statement more fully describes the details of the business to be conducted at the Special Meeting. After careful consideration, our Board of Directors has unanimously approved the proposals and recommends that you vote FOR each proposal described in the Proxy Statement.

We look forward to seeing you at the Special Meeting.

Sincerely,

A handwritten signature in black ink, appearing to read 'Geert Cauwenbergh', written over a horizontal line.

Geert Cauwenbergh, Dr. Med. Sc.
President and Chief Executive Officer

March , 2016

WHETHER OR NOT YOU EXPECT TO ATTEND THE MEETING, PLEASE VOTE VIA THE INTERNET OR OVER THE TELEPHONE AS INSTRUCTED IN THE ENCLOSED PROXY CARD, OR, COMPLETE, DATE, SIGN AND RETURN THE ENCLOSED PROXY CARD USING THE ENCLOSED RETURN ENVELOPE, AS PROMPTLY AS POSSIBLE IN ORDER TO ENSURE YOUR REPRESENTATION AT THE MEETING. EVEN IF YOU HAVE VOTED BY PROXY, YOU MAY STILL VOTE IN PERSON IF YOU ATTEND THE MEETING. PLEASE NOTE, HOWEVER, THAT IF YOUR SHARES ARE HELD OF RECORD BY A BROKER, BANK OR OTHER NOMINEE AND YOU WISH TO VOTE AT THE MEETING, YOU MUST OBTAIN A PROXY CARD ISSUED IN YOUR NAME FROM THAT INTERMEDIARY.



257 Simarano Drive, Suite 101
Marlborough, MA 01752

**PROXY STATEMENT FOR
2016 SPECIAL MEETING OF STOCKHOLDERS
TO BE HELD ON APRIL 14, 2016**

GENERAL INFORMATION

This Proxy Statement is furnished in connection with the solicitation of proxies by the Board of Directors (the "**Board**") of RXi Pharmaceuticals Corporation ("**RXi**" or the "**Company**") for use at a special meeting of stockholders (the "**Special Meeting**"), to be held at the Company's offices, located at 257 Simarano Drive, Suite 101, Marlborough, Massachusetts 01752 on April 14, 2016, at 11:00 a.m. local time. This Proxy Statement and accompanying form of Proxy is first being mailed to our stockholders on or about March 10, 2016.

The Proxy Statement instructs you on how you may submit your proxy via the Internet.

For a proxy to be effective, it must be properly executed and received prior to the Special Meeting. Each proxy properly tendered will, unless otherwise directed by the stockholder, be voted for the proposals and nominees described in this Proxy Statement and at the discretion of the proxy holder(s) with regard to all other matters that may properly come before the meeting.

The Company will pay all of the costs of soliciting proxies. We will provide copies of our proxy materials to brokerage firms, fiduciaries and custodians for forwarding to beneficial owners who request printed copies of these materials and will reimburse these persons for their costs of forwarding these materials. Our directors, officers and employees may also solicit proxies by telephone, facsimile or personal solicitation; however, we will not pay them additional compensation for any of these services.

Shares Outstanding and Voting Rights

Only holders of record of our common stock ("**common stock**") at the close of business on February 24, 2016 (the "**Record Date**"), are entitled to notice of and to vote at the Special Meeting. On the Record Date, 10,000,000 shares of common stock were issued and outstanding. Each share of common stock is entitled to one vote on all matters to be voted upon at the Special Meeting. The presence, in person or by proxy, of the holders of a majority of the outstanding shares on the Record Date will constitute a quorum for the transaction of business at the Special Meeting and any adjournment thereof. Broker non-votes, defined below, and abstentions are counted for the purposes of establishing a quorum.

If your shares are registered directly in your name, you are a stockholder of record. If you are the stockholder of record on the Record Date (a "**record holder**"), and you sign and return a proxy card without giving specific voting instructions, then the proxy holders will vote your shares in the manner recommended by our Board on all matters presented in this Proxy Statement, and as the proxy holders may determine, in their discretion, with respect to any other matters properly presented for a vote at the meeting.

If your shares are registered in the name of your broker, bank or similar organization, then you are the beneficial owner of shares held in street name. If your shares are held in street name, you must instruct the organization who holds your shares how to vote your shares. If you do not provide voting instructions, the organization that holds your shares may generally vote at its discretion on routine matters, but will not vote those shares on any non-routine proposal (a “**broker non-vote**”). Broker non-votes do not count as a vote **FOR** or **AGAINST** any of the proposals. Because the Reverse Stock Split, described below, requires a majority of our outstanding shares to vote **FOR** approval, a broker non-vote will be the same as a vote **AGAINST** these proposals.

Our management believes that the Reverse Stock Split and the Adjournment Proposal are routine matters. Consequently, if beneficial holders do not give any direction, their brokers will be permitted to vote shares of common stock at the Special Meeting in relation to these matters. However, we encourage you to submit your voting instructions to your broker to ensure your shares of common stock are voted at the Special Meeting.

Since the Reverse Stock Split requires the affirmative vote of a majority of our outstanding shares of common stock, a properly executed proxy card marked **ABSTAIN** with respect to these proposals at the Special Meeting will have the same effect as voting **AGAINST** that proposal. By contrast, since, pursuant to the Company’s bylaws, the Adjournment Proposal must be approved by the majority of the shares of common stock that affirmatively or negatively on such proposal, a properly executed proxy card marked **ABSTAIN** with respect to the Adjournment Proposal will have no effect on that proposal.

The required vote for each of the proposals expected to be acted upon at the Special Meeting is described below:

*Proposal No. 1 — Approve an amendment to the Company’s Amended and Restated Certificate of Incorporation, as amended (as amended from time to time, the “**Charter**”), to effect a reverse stock split of the Company’s common stock, at a ratio of not less than 1-for-2 and not greater than 1-for-40, with the exact ratio and effective time of the reverse stock split to be determined by the Board (the “**Reverse Stock Split**”). This proposal must be approved by a majority of the outstanding shares of our common stock. As a result, abstentions and broker non-votes will have the same effect as a vote against such proposal.*

*Proposal No. 2 — Authorize adjournment of the Special Meeting, if necessary or appropriate, and if a quorum is present, to solicit additional proxies if there are insufficient votes at the Special Meeting in favor of the Reverse Stock Split (the “**Adjournment Proposal**”). This proposal must be approved by a majority of the votes cast on the matter affirmatively or negatively. As a result, abstentions and broker non-votes will be entirely excluded from the vote and will have no effect on its outcome.*

We encourage you to vote by proxy, whether via telephone, through the Internet or mailing an executed proxy card. Voting in advance of the Special Meeting ensures that your shares will be voted and reduces the likelihood that the Company will be forced to incur additional expenses soliciting proxies for the Special Meeting. Any record holder of our common stock may attend the Special Meeting in person and may revoke the enclosed form of proxy at any time up to and including the day of the Special Meeting by:

- executing and delivering to the corporate secretary a later-dated proxy;
- delivering a written revocation to the corporate secretary before the meeting; or
- voting in person at the Special Meeting.

Beneficial holders of our common stock who wish to change or revoke their voting instructions should contact their brokerage firm, bank or other financial institution for information on how to do so. Beneficial holders who wish to attend the Special Meeting and vote in person should contact their brokerage firm, bank or other financial institution holding shares of our common stock on their behalf in order to obtain a “legal proxy,” which will allow them to both attend the Special Meeting and vote in person. Without a legal proxy, beneficial holders cannot vote at the Special Meeting because their brokerage firm, bank or other financial institution may have already voted or returned a broker non-vote on their behalf.

**SECURITY OWNERSHIP OF CERTAIN
BENEFICIAL OWNERS AND MANAGEMENT**

Based on information available to us and filings with the SEC, the following table sets forth certain information regarding the beneficial ownership (as defined by Rule 13d-3 under the Securities Exchange Act of 1934) of our outstanding common stock for (i) each of our directors, (ii) our two “named executive officers,” Geert Cauwenbergh, Dr. Med. Sc., President, Chief Executive Officer, acting Chief Financial Officer and Director, and Pamela Pavco, Ph.D., Chief Development Officer, (iii) all of our directors and executive officers as a group and (iv) persons known to us to beneficially own more than 5% of our outstanding common stock. The following information is presented as of February 1, 2016 or such other date as may be reflected below.

Beneficial ownership and percentage ownership are determined in accordance with the rules 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. Under these rules, shares of common stock issuable under stock options or warrants that are exercisable within 60 days of February 1, 2016 are deemed outstanding for the purpose of computing the percentage ownership of the person holding the options or warrants, but are not deemed outstanding for the purpose of computing the percentage ownership of any other person.

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 their shares of common stock, except for those jointly owned with that person’s spouse. Unless otherwise indicated below, the address of each person listed on the table is c/o RXi Pharmaceuticals Corporation, 257 Simarano Drive, Suite 101, Marlborough, MA 01752.

| <u>Name and Address of Beneficial Owner</u> | <u>Shares Beneficially Owned</u> | |
|--|----------------------------------|----------------------------|
| | <u>Number(1)</u> | <u>Percent of Class(2)</u> |
| <i>Greater than 5% Holders</i> | | |
| Broadfin Capital, LLC ⁽³⁾ 237 Park Avenue, Suite 900 New York, New York 10017 | 6,617,138 | 9.90% |
| <i>Directors, Officers and Named Executive Officers:</i> | | |
| Geert Cauwenbergh, Dr. Med. Sc. ⁽⁴⁾ | 1,497,131 | 2.25% |
| Robert J. Bitterman ⁽⁵⁾ | 160,665 | * |
| Keith L. Brownlie ⁽⁶⁾ | 79,165 | * |
| H. Paul Dorman ⁽⁷⁾ | 137,498 | * |
| Curtis A. Lockshin, Ph.D. ⁽⁸⁾ | 87,498 | * |
| Pamela J. Pavco, Ph.D. ⁽⁹⁾ | 719,677 | 1.09% |
| All current directors and executive officers as a group (six persons) | 2,681,634 | 3.96% |

* Indicates less than 1%.

- (1) Represents shares of common stock and shares of restricted stock held as of February 1, 2016 plus shares of common stock that may be acquired upon exercise of options, warrants and other rights exercisable within 60 days of February 1, 2016.
- (2) Based on 65,349,121 shares of the registrant’s common stock that were issued and outstanding as of February 1, 2016. The percentage ownership and voting power for each person (or all directors and executive officers as a group) is calculated by assuming the exercise or conversion of all options, warrants and convertible securities exercisable or convertible within 60 days of February 1, 2016 held by such person and the non-exercise and non-conversion of all outstanding warrants, options and convertible securities held by all other persons.

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- (3) Based solely on information set forth in a 13G/A filed with the SEC on February 12, 2016. Voting and dispositive power with respect to the shares is shared with Broadfin Healthcare Master Fund, Ltd. and Kevin Kotler. Kevin Kotler is the Managing Member of Broadfin Capital, LLC and Director of Broadfin Healthcare Master Fund, Ltd.
 - (4) Consists of (a) 187,500 shares of common stock and (b) 1,264,631 shares of common stock issuable upon the exercise of options and 45,000 shares of common stock issuable upon the exercise of warrants exercisable within 60 days of February 1, 2016.
 - (5) Consists of (a) 44,000 shares of common stock and (b) 79,165 shares of common stock issuable upon the exercise of options and 37,500 shares of common stock issuable upon the exercise of warrants exercisable within 60 days of February 1, 2016.
 - (6) Consists of 79,165 shares of common stock issuable upon the exercise of options exercisable within 60 days of February 1, 2016.
 - (7) Consists of (a) 37,500 shares of common stock and (b) 62,498 shares of common stock issuable upon the exercise of options and 37,500 shares of common stock issuable upon the exercise of warrants exercisable within 60 days of February 1, 2016.
 - (8) Consists of (a) 13,000 shares of common stock and (b) 62,498 shares of common stock issuable upon the exercise of options and 12,000 shares of common stock issuable upon the exercise of warrants exercisable within 60 days of February 1, 2016.
 - (9) Consists of (a) 60,627 shares of common stock and (b) 646,550 shares of common stock issuable upon the exercise of options and 12,500 shares of common stock issuable upon the exercise of warrants exercisable within 60 days of February 1, 2016.

**PROPOSAL NO. 1
REVERSE STOCK SPLIT**

General

Our board of directors has unanimously approved, and recommended that our stockholders approve, an amendment to our Charter (the “*Certificate of Amendment*”), to effect a reverse stock split at a ratio of not less than 1-for-2 and not greater than 1-for-40, with the final decision of whether to proceed with the Reverse Stock Split, the effective time of the Reverse Stock Split, and the exact ratio of the Reverse Stock Split to be determined by the Board, in its discretion. If the stockholders approve the Reverse Stock Split, and the Board decides to implement it, the Reverse Stock Split will become effective as of 12:01 a.m., Eastern Time on a date to be determined by the Board that will be specified in the Certificate of Amendment. If the Board does not decide to implement the Reverse Stock Split within twelve months from the date of the Special Meeting, the authority granted in this proposal to implement the reverse stock split will terminate.

The Reverse Stock Split will be realized simultaneously for all outstanding common stock. The Reverse Stock Split will affect all holders of common stock uniformly and each stockholder will hold the same percentage of common stock outstanding immediately following the Reverse Stock Split as that stockholder held immediately prior to the Reverse Stock Split, except for immaterial adjustments that may result from the treatment of fractional shares as described below. The Reverse Stock Split will not change the par value of our common stock and will not reduce the number of authorized shares of common stock.

Reasons for the Reverse Stock Split

The principal reason for the reverse stock split is to increase the per share trading price of the Company’s common stock in order to help ensure a share price high enough to satisfy the \$1.00 per share minimum bid price requirement for continued listing on The Nasdaq Capital Market, although there can be no assurance that the trading price of our common stock would be maintained at such level or that we will be able to maintain the listing of our common stock on The Nasdaq Capital Market.

As previously reported, on May 7, 2015, the Company received written notice (the “*Notification Letter*”) from the Nasdaq Stock Market (“*Nasdaq*”) notifying the Company that it was not in compliance with the minimum bid price requirements set forth in Nasdaq Listing Rule 5550(a)(2) for continued listing on The Nasdaq Capital Market, because the bid price of the Company’s common stock had closed below the minimum \$1.00 per share for the 30 consecutive business days prior to the date of the Notification Letter. The Notification Letter indicated that we had been provided an initial period of 180 calendar days, or until November 3, 2015, in which to regain compliance.

The Company was unable to regain compliance with the bid price requirement by November 3, 2015. Pursuant to Nasdaq Listing Rule 5810(c)(3)(A)(ii), on November 4, 2015, Nasdaq granted the Company an additional 180 calendar days, or until May 2, 2016, to regain compliance with the bid price requirement. The Nasdaq determination was based on the Company meeting the continued listing requirement for market value of publicly held shares and all other applicable requirements for initial listing on the Nasdaq Capital Market, with the exception of the bid price requirement, and the Company’s written notice of its intention to cure the deficiency during the second compliance period by effecting a reverse stock split, if necessary.

If we do not regain compliance by May 2, 2016, the Nasdaq staff will provide written notice that our common stock is subject to delisting. The Board has considered the potential harm to the Company and our stockholders should Nasdaq delist our common stock. Delisting from Nasdaq would likely adversely affect our ability to raise additional financing through the public or private sale of equity securities and would significantly affect the ability of investors to trade our securities. Delisting would also likely negatively affect the value and liquidity of our common stock because alternatives, such as the OTC Bulletin Board and the pink sheets, are generally considered to be less efficient markets.

We believe that the Company's best option to meet Nasdaq's \$1.00 minimum bid price requirement before the end of the current 180-day grace period is to effect the Reverse Stock Split to increase the per-share trading price of our common stock. Given the volatility and fluctuations in the capital markets, the Board believes that the likelihood of our stock price increasing to meet the Nasdaq listing requirements within the 180-day grace period without the Reverse Stock Split is remote and that the Company likely will have to take additional actions to comply with Nasdaq requirements.

In addition, we believe that the low per share market price of our common stock impairs its marketability to and acceptance by institutional investors and other members of the investing public and creates a negative impression of the Company. Theoretically, decreasing the number of shares of common stock outstanding should not, by itself, affect the marketability of the shares, the type of investor who would be interested in acquiring them, or our reputation in the financial community. In practice, however, many investors, brokerage firms and market makers consider low-priced stocks as unduly speculative in nature and, as a matter of policy, avoid investment and trading in such stocks. Moreover, the analysts at many brokerage firms do not monitor the trading activity or otherwise provide coverage of lower priced stocks. The presence of these factors may be adversely affecting, and may continue to adversely affect, not only the pricing of our common stock but also its trading liquidity. In addition, these factors may affect our ability to raise additional capital through the sale of stock.

Further, we believe that a higher stock price could help us establish business development relationships with other companies. Theoretically, decreasing the number of shares of common stock outstanding should not, by itself, affect our reputation in our business community. In practice, however, we believe that potential business development partners may be less confident in the prospects of a company with a low stock price, and are less likely to enter into business relationships with a company with a low stock price. If the reverse stock split successfully increases the per share price of our common stock, we believe this may increase our ability to attract business development partners.

We further believe that a higher stock price could help us attract and retain employees and other service providers. We believe that some potential employees and service providers are less likely to work for a company with a low stock price, regardless of the size of the company's market capitalization. If the reverse stock split successfully increases the per share price of our common stock, we believe this increase will enhance our ability to attract and retain employees and service providers.

We hope that the decrease in the number of shares of our outstanding common stock as a consequence of the reverse stock split, and the anticipated increase in the price per share, will encourage greater interest in our common stock by the financial community and the investing public, help us attract and retain employees and other service providers, help us raise additional capital through the sale of stock in the future if needed, and possibly promote greater liquidity for our stockholders with respect to those shares presently held by them. However, the possibility also exists that liquidity may be adversely affected by the reduced number of shares which would be outstanding if the reverse stock split is effected, particularly if the price per share of our common stock begins a declining trend after the reverse stock split is effected.

The Board believes that stockholder adoption of a range of Reverse Stock Split ratios (as opposed to adoption of a single reverse stock split ratio or a set of fixed ratios) provides maximum flexibility to achieve the purposes of a reverse stock split and, therefore, is in the best interests of the Company. In determining a ratio following the receipt of stockholder adoption, the Board (or any authorized committee of the Board) may consider, among other things, factors such as:

- the historical trading price and trading volume of our common stock;
- the number of shares of our common stock outstanding;
- the then-prevailing trading price and trading volume of our common stock and the anticipated impact of the Reverse Stock Split on the trading market for our common stock;
- the anticipated impact of a particular ratio on our ability to reduce administrative and transactional costs;

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- the continued listing requirements of Nasdaq; and
 - prevailing general market and economic conditions.

The Board (or any authorized committee of the Board) reserves the right to elect to abandon the Reverse Stock Split, notwithstanding stockholder adoption thereof, if it determines, in its sole discretion, that the Reverse Stock Split is no longer in the best interests of the Company.

Reverse Stock Split Amendment to the Charter

If the Reverse Stock Split is approved, the following paragraph shall be added after subsection (a) of ARTICLE IV of the Charter:

“Upon the effectiveness of this Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Corporation, each whole number of shares, as determined by the Board shares of Common Stock issued and outstanding at such time shall, automatically and without any further action on the part of the Corporation or the holder thereof, be combined into one (1) validly issued, fully paid and non-assessable share of Common Stock (the “Reverse Stock Split”). The par value of the Common Stock following the Reverse Stock Split shall remain \$0.0001 per share. No fractional shares shall be issued, and, in lieu thereof, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock, as determined by the Board of Directors. Each certificate that immediately prior to the Effective Time represented shares of Common Stock (an “Old Certificate”) shall thereafter represent that number of shares of Common Stock into which the shares of Common Stock represented by the Old Certificate shall have been combined, subject to the elimination of fractional share interests as described above.”

The Certificate of Amendment attached hereto as Appendix A reflects the changes that will be implemented to our Charter if the Reverse Stock Split is approved.

Principal Effects of the Reverse Stock Split

If the stockholders approve the proposal to authorize the Board to implement the Reverse Stock Split and the Board implements the Reverse Stock Split, we will amend the existing provision of Article IV of our Charter in the manner set forth above.

By approving this amendment, stockholders will approve the combination of any whole number of shares of common stock between and including two (2) and forty (40), with the exact number to be determined by the Board, into one (1) share. The Certificate of Amendment to be filed with the Secretary of State of the State of Delaware will include only that number determined by the Board of Directors to be in the best interests of the Company and its stockholders. In accordance with these resolutions, the Board of Directors will not implement any amendment providing for a different split ratio.

As explained above, the Reverse Stock Split will be effected simultaneously for all issued and outstanding shares of common stock and the exchange ratio will be the same for all issued and outstanding shares of common stock. The Reverse Stock Split will affect all of our stockholders uniformly and will not affect any stockholder’s percentage ownership interests in the Company, except to the extent that the Reverse Stock Split results in any of our stockholders receiving a cash payment in lieu of owning a fractional share, as described in the section titled “**Fractional Shares,**” below. Common stock issued pursuant to the Reverse Stock Split will remain fully paid and non-assessable. The Reverse Stock Split will not affect the Company’s continuing obligations under the periodic reporting requirements of the Securities Exchange Act of 1934, as amended (the “*Exchange Act*”). Following the Reverse Stock Split, our common stock will continue to be listed on The Nasdaq Capital Market, under the symbol “RXII,” although it would receive a new CUSIP number.

Upon effectiveness of the Reverse Stock Split, the number of authorized shares of common stock that are not issued or outstanding will increase substantially, because the proposed amendment will not reduce the number of

authorized shares, while it will reduce the number of outstanding shares by a factor of between and including two and forty, depending on the exchange ratio selected by the Board.

The shares that are authorized but unissued after the Reverse Stock Split will be available for issuance, and, if we issue these shares, the ownership interest of holders of our common stock may be diluted. We may issue such shares to raise capital and/or as consideration in acquiring other businesses or establishing strategic relationships with other companies. Such acquisitions or strategic relationships may be effected using shares of common stock or other securities convertible into common stock and/or by using capital that may need to be raised by selling such securities. We do not have any agreement, arrangement or understanding at this time with respect to any specific transaction or acquisition for which the newly unissued authorized shares would be issued.

Procedure for Effecting Reverse Stock Split and Exchange of Stock Certificates

If the Reverse Stock Split is approved by the Company's stockholders, and if at such time the Board still believes that a Reverse Stock Split is in the best interests of the Company and its stockholders, the Board will determine the ratio of the Reverse Stock Split to be implemented. The Reverse Stock Split will become effective as of 12:01 a.m., Eastern Time on the date specified in the Certificate of Amendment as filed with the office of the Secretary of State of the State of Delaware (the "*effective time*"). The Board will determine the exact timing of the filing of the Certificate of Amendment based on its evaluation as to when the filing would be the most advantageous to the Company and its stockholders. If the Board does not decide to implement the Reverse Stock Split within twelve months from the date of the Special Meeting, the authority granted in this proposal to implement the Reverse Stock Split will terminate.

Except as described below under the section titled "**Fractional Shares**," at the effective time, each whole number of issued and outstanding pre-reverse split shares that the Board has determined will be combined into one post-reverse split share, will, automatically and without any further action on the part of our stockholders, be combined into and become one share of common stock, and each certificate which, immediately prior to the effective time represented pre-reverse stock split shares, will be deemed for all corporate purposes to evidence ownership of post-reverse split shares.

Fractional Shares

No fractional shares will be issued in connection with the Reverse Stock Split. Stockholders of record at the effective time of the Reverse Stock Split who otherwise would be entitled to receive fractional shares because they hold a number of pre-split shares not evenly divisible by the number of pre-split shares for which each post-split share is to be exchanged, will, in lieu of a fractional share, be entitled, upon surrender to the exchange agent of certificate(s) representing such pre-split shares, to a cash payment in lieu thereof. The cash payment will equal the fraction to which the stockholder would otherwise be entitled multiplied by the average of the closing prices (as adjusted to reflect the Reverse Stock Split) of our common stock, as reported by Bloomberg L.P., during the ten consecutive trading days ending on the trading day that is the second day immediately prior to the date on which the Reverse Stock Split becomes effective.

Stockholders should be aware that, under the escheat laws of the various jurisdictions where stockholders reside, sums due for fractional interests that are not timely claimed after the effective time may be required to be paid to the designated agent for each such jurisdiction. Thereafter, stockholders otherwise entitled to receive such funds may have to seek to obtain them directly from the state to which they were paid.

Risks Associated with the Reverse Stock Split

We cannot predict whether the Reverse Stock Split will increase the market price for our common stock. The history of similar stock split combinations for companies in like circumstances is varied, and the market price of our common stock will also be based on our performance and other factors, some of which are unrelated to the

number of shares outstanding. Further, there are a number of risks associated with the Reverse Stock Split, including:

- The market price per share of our shares of common stock post-Reverse Stock Split may not remain in excess of the \$1.00 minimum bid price per share as required by Nasdaq, or the Company may fail to meet the other requirements for continued listing on Nasdaq, including the minimum value of listed securities, as described above, resulting in the delisting of our common stock.
- Although the Board believes that a higher stock price may help generate the interest of new investors, the Reverse Stock Split may not result in a per-share price that will successfully attract certain types of investors and such resulting share price may not satisfy the investing guidelines of institutional investors or investment funds. Further, other factors, such as our financial results, market conditions and the market perception of our business, may adversely affect the interest of new investors in the shares of our common stock. As a result, the trading liquidity of the shares of our common stock may not improve as a result of the Reverse Stock Split and there can be no assurance that the Reverse Stock Split, if completed, will result in the intended benefits described above.
- The Reverse Stock Split could be viewed negatively by the market and other factors, such as those described above, may adversely affect the market price of the shares of our common stock. Consequently, the market price per post-Reverse Stock Split shares may not increase in proportion to the reduction of the number of shares of our common stock outstanding before the implementation of the Reverse Stock Split. Accordingly, the total market capitalization of our shares of common stock after the Reverse Stock Split may be lower than the total market capitalization before the Reverse Stock Split. Any reduction in total market capitalization as the result of the Reverse Stock Split may make it more difficult for us to meet the Nasdaq Listing Rule regarding minimum value of listed securities, which could result in our shares of common stock being delisted from The Nasdaq Capital Market.
- The Reverse Stock Split may result in some stockholders owning “odd lots” of less than 100 shares of common stock. Odd lot shares may be more difficult to sell, and brokerage commissions and other costs of transactions in odd lots are generally somewhat higher than the costs of transactions in “round lots” of even multiples of 100 shares.

Book-Entry Shares

If the Reverse Stock Split is effected, stockholders who hold uncertificated shares (i.e., shares held in book-entry form and not represented by a physical stock certificate), either as direct or beneficial owners, will have their holdings electronically adjusted automatically by our transfer agent (and, for beneficial owners, by their brokers or banks that hold in “street name” for their benefit, as the case may be) to give effect to the Reverse Stock Split. Stockholders who hold uncertificated shares as direct owners will be sent a statement of holding from our transfer agent that indicates the number of post-reverse stock split shares of our common stock owned in book-entry form.

Certificated Shares

As soon as practicable after the effective time of the Reverse Stock Split, stockholders will be notified that the Reverse Stock Split has been effected. We expect that our transfer agent will act as exchange agent for purposes of implementing the exchange of stock certificates. Holders of pre-split shares will be asked to surrender to the exchange agent certificates representing pre-split shares in exchange for certificates representing post-split shares in accordance with the procedures to be set forth in a letter of transmittal to be sent by us or our exchange agent. No new certificates will be issued to a stockholder until such stockholder has surrendered such stockholder’s outstanding certificate(s) together with the properly completed and executed letter of transmittal to the exchange agent. Any pre-split shares submitted for transfer, whether pursuant to a sale or other disposition, or otherwise, will automatically be exchanged for post-split shares. STOCKHOLDERS SHOULD NOT DESTROY ANY STOCK CERTIFICATE(S) AND SHOULD NOT SUBMIT ANY CERTIFICATE(S) UNTIL REQUESTED TO DO SO.

Principal Effects of Reverse Stock Split on Outstanding Options, Overallotment Rights, Warrants, and Option Plan

As of the Record Date, there were outstanding stock options to purchase an aggregate of _____ shares of our common stock with a weighted average exercise price of \$ _____ per share, overallotment purchase rights to purchase an aggregate of _____ shares of common stock with a weighted average exercise price of \$ _____ per share, and warrants to purchase an aggregate of _____ shares of common stock with a weighted average exercise price of \$ _____ per share. When the Reverse Stock Split becomes effective, the number of shares of common stock covered by such rights will be reduced to between and including one-half and one-fortieth the number currently covered, and the exercise or conversion price per share will be increased by between and including two and forty times the current exercise or conversion price, resulting in the same aggregate price being required to be paid therefor upon exercise or conversion thereof as was required immediately preceding the Reverse Stock Split.

In addition, the number of shares of common stock and number of shares of common stock subject to stock options or similar rights authorized under the Company's equity incentive plan and employee stock purchase plan will automatically be proportionately adjusted for the reverse stock split ratio, such that fewer shares will be subject to such plans. Further, the per share exercise price under such plans will automatically be proportionately adjusted for the reverse stock split.

Accounting Matters

The Reverse Stock Split will not affect the common stock capital account on our balance sheet. However, because the par value of our common stock will remain unchanged at the effective time of the split, the components that make up the common stock capital account will change by offsetting amounts. Depending on the size of the Reverse Stock Split the Board decides to implement, the stated capital component will be reduced proportionately based upon the Reverse Stock Split and the additional paid-in capital component will be increased with the amount by which the stated capital is reduced. Immediately after the Reverse Stock Split, the per share net income or loss and net book value of our common stock will be increased because there will be fewer shares of common stock outstanding. All historic share and per share amounts in our financial statements and related footnotes will be adjusted accordingly for the Reverse Stock Split.

Effect on Par Value

The proposed amendment to our Charter will not affect the par value of our common stock, which will remain at \$0.0001 per share.

No Going Private Transaction

Notwithstanding the decrease in the number of outstanding shares following the proposed Reverse Stock Split, our Board does not intend for this transaction to be the first step in a "going private transaction" within the meaning of Rule 13e-3 of the Exchange Act.

Potential Anti-Takeover Effect

Although the increased proportion of unissued authorized shares to issued shares could, under certain circumstances, have an anti-takeover effect (for example, by permitting issuances that would dilute the stock ownership of a person seeking to effect a change in the composition of the Board or contemplating a tender offer or other transaction for the combination of the Company with another company), the Reverse Stock Split proposal is not being proposed in response to any effort of which we are aware to accumulate shares of our common stock or obtain control of the Company, nor is it part of a plan by management to recommend a series of similar amendments to the Board and stockholders. Other than the Reverse Stock Split proposal, the Board does not currently contemplate recommending the adoption of any other actions that could be construed to affect the ability of third parties to take over or change control of the Company.

No Dissenters' Appraisal Rights

Under the Delaware General Corporation Law, the Company's stockholders are not entitled to dissenters' appraisal rights with respect to the Reverse Stock Split, and the Company will not independently provide stockholders with any such right.

Material United States Federal Income Tax Consequences of the Reverse Stock Split

The following is not intended as tax or legal advice. Each holder should seek advice based on his, her or its particular circumstances from an independent tax advisor.

The following is a summary of certain United States federal income tax consequences of the Reverse Stock Split generally applicable to beneficial holders of shares of our common stock. This summary addresses only such stockholders who hold their pre-reverse stock split shares as capital assets and will hold the post-reverse stock split shares as capital assets. This discussion does not address all United States federal income tax considerations that may be relevant to particular stockholders in light of their individual circumstances or to stockholders that are subject to special rules, such as financial institutions, tax-exempt organizations, insurance companies, dealers in securities, and foreign stockholders. The following summary is based upon the provisions of the Internal Revenue Code of 1986, as amended, applicable Treasury Regulations thereunder, judicial decisions and current administrative rulings, as of the date hereof, all of which are subject to change, possibly on a retroactive basis. Tax consequences under state, local, foreign, and other laws are not addressed herein. Each stockholder should consult its tax advisor as to the particular facts and circumstances which may be unique to such stockholder and also as to any estate, gift, state, local or foreign tax considerations arising out of the Reverse Stock Split.

Exchange Pursuant to Reverse Stock Split

No gain or loss will be recognized by a stockholder upon such stockholder's exchange of pre-reverse stock split shares for post-reverse stock split shares pursuant to the Reverse Stock Split, except to the extent of cash, if any, received in lieu of fractional shares, further described in "*Cash in Lieu of Fractional Shares*" below. The aggregate tax basis of the post-reverse stock split shares received in the Reverse Stock Split, including any fractional share deemed to have been received, will be equal to the aggregate tax basis of the pre-reverse stock split shares exchanged therefor, and the holding period of the post-reverse stock split shares will include the holding period of the pre-reverse stock split shares.

Cash in Lieu of Fractional Shares

A holder of pre-reverse stock split shares that receives cash in lieu of a fractional share of post-reverse stock split shares should generally be treated as having received such fractional share pursuant to the Reverse Stock Split and then as having exchanged such fractional share for cash in a redemption by the Company. The amount of any gain or loss should be equal to the difference between the ratable portion of the tax basis of the pre-reverse stock split shares exchanged in the Reverse Stock Split that is allocated to such fractional share and the cash received in lieu thereof. In general, any such gain or loss will constitute a long-term capital gain or loss if the holder's holding period for such pre-reverse stock split shares exceeds one year at the time of the Reverse Stock Split. Deductibility of capital losses by holders is subject to limitations.

Interests of Directors and Executive Officers

Our directors and executive officers have no substantial interests, directly or indirectly, in the matters set forth in this proposal except to the extent of their ownership of shares of our common stock.

Reservation of Right to Abandon Reverse Stock Split

We reserve the right to not file the Certificate of Amendment and to abandon any reverse stock split without further action by our stockholders at any time before the effectiveness of the filing with the Secretary of the State

of Delaware of the Certificate of Amendment, even if the authority to effect these amendments is approved by our stockholders at the annual meeting. By voting in favor of a reverse stock split, you are expressly also authorizing the Board to delay, not proceed with, and abandon, these proposed amendments if it should so decide, in its sole discretion, that such action is in the best interests of our stockholders.

Recommendation

The Board recommends a vote “FOR” the ratification the Certificate of Amendment so as to effect the Reverse Stock Split.

Vote Required

The affirmative vote of the holders of a majority of the outstanding shares of our common stock entitled to vote on the matter either in person or by proxy is required to approve the Certificate of Amendment to our Charter to effect the Reverse Stock Split of our common stock. Abstentions and broker non-votes, if any, will thus count as votes AGAINST the Reverse Stock Split.

Holders of proxies solicited by this Proxy Statement will vote the proxies received by them as directed on the proxy card or, if no direction is made, then FOR the Reverse Stock Split.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE “FOR” THE AMENDMENT OF OUR CHARTER TO EFFECT THE REVERSE STOCK SPLIT.

**PROPOSAL NO. 2
ADJOURNMENT PROPOSAL**

If at the Special Meeting the number of shares of common stock present or represented and voting in favor of the Reverse Stock Split is insufficient to approve the Reverse Stock Split, management may move to adjourn, postpone or continue the Special Meeting in order to enable the Board to continue to solicit additional proxies in favor of the proposed Reverse Stock Split.

In this Adjournment Proposal, we are asking you to authorize the holder of any proxy solicited by the Board to vote in favor of adjourning, postponing or continuing the Special Meeting and any later adjournments. If the stockholders approve the Adjournment Proposal, we could adjourn, postpone or continue the Special Meeting, and any adjourned session of the Special Meeting, to use the additional time to solicit additional proxies in favor of the Reverse Stock Split. Among other things, approval of the Adjournment Proposal could mean that, even if proxies representing a sufficient number of votes against the Reverse Stock Split have been received, we could adjourn, postpone or continue the Special Meeting without a vote on the Reverse Stock Split and seek to convince the holders of those shares to change their votes to votes in favor of the Reverse Stock Split.

Recommendation

The Board recommends a vote “FOR” the Adjournment Proposal. No proxy that is specifically marked AGAINST the Reverse Stock Split will be voted in favor of the Adjournment Proposal, unless it is specifically marked FOR the discretionary authority to adjourn, postpone or continue the Special Meeting to a later date.

Vote Required

The Adjournment Proposal will be approved if a majority vote of the shares cast affirmatively or negatively for this proposal is cast FOR the proposal. Accordingly, abstentions and broker-non-votes will not be counted as votes cast and, therefore, will have no impact on the approval of this proposal.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE “FOR” THE ADJOURNMENT PROPOSAL.

OTHER BUSINESS

We know of no other matters to be submitted to a vote of stockholders at the Special Meeting. If any other matter is properly brought before the Special Meeting or any adjournment thereof, it is the intention of the persons named in the enclosed proxy to vote the shares they represent in accordance with their best judgment.

To assure the presence of the necessary quorum and to vote on the matters to come before the Special Meeting, please promptly indicate your choices via the internet, by phone or by mail, according to the procedures described on the proxy card. The submission of a proxy via the internet, by phone or by mail does not prevent you from attending and voting at the Special Meeting.

STOCKHOLDER PROPOSALS

Stockholder proposals intended to be included in the 2016 annual meeting proxy materials must be received by the Secretary of the Company no later than February 1, 2016, or otherwise as permitted by applicable law (the "Proxy Deadline"). The form and substance of these proposals must satisfy the requirements established by the Company's Bylaws and the SEC, and the timing for the submission of any such proposals may be subject to change as a result of changes in SEC rules and regulations.

Additionally, stockholders who intend to present a stockholder proposal at the 2016 annual meeting must provide the Secretary of the Company with written notice of the proposal not fewer than 90 nor more than 120 days prior to the anniversary date of the 2015 annual meeting, provided, however, that if the 2016 annual meeting date is more than 30 days before or after the anniversary date of the 2015 annual meeting, then stockholders must provide notice on or before 10 days after the day on which the date of the 2016 annual meeting is first disclosed in a public announcement. Notice must be tendered in the proper form prescribed by our Bylaws. Proposals not meeting the requirements set forth in our Bylaws will not be entertained at the meeting.

Additionally, any stockholder seeking to recommend a director candidate or any director candidate who wishes to be considered by the Nominating & Governance Committee, the committee that recommends a slate of nominees to the Board for election at each annual meeting, must provide the Secretary of the Company with a completed and signed biographical questionnaire on or before the Proxy Deadline. Stockholders can obtain a copy of this questionnaire from the Secretary of the Company upon written request. The Nominating & Governance Committee is not required to consider director candidates received after this date or without the required questionnaire. The Nominating & Governance Committee will consider all director candidates who comply with these requirements and will evaluate these candidates using the criteria described above under the caption, "Nomination of Directors." Director candidates who are then approved by the Board will be included in the Company's proxy statement for that annual meeting.

DELIVERY OF PROXY MATERIALS

Copies of our Annual Report on Form 10-K for fiscal 2014 and the exhibits thereto are available from the Company without charge upon written request of a stockholder. Copies of these materials are also available online through the Securities and Exchange Commission at www.sec.gov. The Company may satisfy SEC rules regarding delivery of proxy materials, including the Proxy Statement and Annual Report, by delivering a single set of proxy materials to an address shared by two or more Company stockholders. This delivery method can result in meaningful cost savings for the Company. In order to take advantage of this opportunity, the Company may deliver only a single set of proxy materials to multiple stockholders who share an address, unless contrary instructions are received prior to the mailing date. Similarly, if you share an address with another stockholder and have received multiple copies of our proxy materials, you may write or call us at the address and phone number below to request delivery of a single copy of the proxy materials in the future. We undertake to deliver promptly upon written or oral request a separate

copy of the proxy materials, as requested, to a stockholder at a shared address to which a single copy of the proxy materials was delivered. If you hold stock as a record stockholder and prefer to receive separate copies of proxy materials either now or in the future, please contact the Company's Investor Relations department at 257 Simarano Drive, Suite 101, Marlborough, MA 01752 or by telephone at (508) 929-3646. If your stock is held through a brokerage firm or bank and you prefer to receive separate copies of proxy materials either now or in the future, please contact your brokerage firm or bank.

AVAILABLE INFORMATION

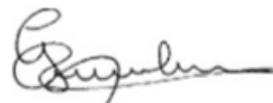
The Company is subject to the informational requirements of the Securities Exchange Act of 1934, as amended, and, in accordance therewith, files reports and other information with the Securities and Exchange Commission (the "**SEC**"). Any interested party may inspect information filed by the Company, without charge, at the public reference facilities of the SEC at its principal office at 100 F. Street, N.E., Washington, D.C. 20549. Any interested party may obtain copies of all or any portion of the information filed by the Company at prescribed rates from the Public Reference Section of the SEC at its principal office at 100 F. Street, N.E., Washington, D.C. 20549. In addition, the SEC maintains an Internet site that contains reports, proxy and information statements and other information regarding the Company and other registrants that file electronically with the SEC at <http://www.sec.gov>.

The Company's common stock is listed on The NASDAQ Capital Market and trades under the symbol "RXII".

APPENDICES

APPENDIX A Certificate of Amendment to the Amended and Restated Certificate of Incorporation regarding the Reverse Stock Split
APPENDIX B Form of Proxy Card

By Order of the Board of Directors,



Geert Cauwenbergh, Dr. Med. Sc.
President and Chief Executive Officer

March , 2016

**EACH STOCKHOLDER IS URGED TO COMPLETE, DATE, SIGN AND PROMPTLY RETURN
THE ENCLOSED PROXY.**

**CERTIFICATE OF AMENDMENT TO THE
AMENDED AND RESTATED CERTIFICATE OF INCORPORATION OF
RXI PHARMACEUTICALS CORPORATION**

RXi Pharmaceuticals Corporation (the "*Corporation*"), a corporation duly organized and existing under the General Corporation Law of the State of Delaware (the "*Delaware General Corporation Law*"), hereby certifies as follows:

- FIRST:** That the board of directors of the Corporation has duly adopted resolutions authorizing the Corporation to execute and file with the Secretary of State of the State of Delaware this Certificate of Amendment to the Amended and Restated Certificate of Incorporation, as amended (this "*Amendment*") to combine each [*] outstanding shares of the Corporation's Common Stock, par value \$0.0001 per share (the "*Common Stock*"), into one (1) validly issued, fully paid and non-assessable share of Common Stock.
- SECOND:** That this Amendment was duly adopted in accordance with the terms of the Amended and Restated Certificate of Incorporation, as amended, and the provisions of the Delaware General Corporation Law by the Board of Directors and stockholders of the Corporation.
- THIRD:** That upon the effectiveness of this Amendment, the Amended and Restated Certificate of Incorporation, as amended, is hereby amended such that subsection (a) of ARTICLE IV is amended and restated in its entirety to read as set forth below, with no changes to be made to the subsequent sections of ARTICLE IV:
- (a) Authorized Shares. The total number of shares of stock which the Corporation shall have authority to issue is 110,000,000 shares, consisting of 100,000,000 shares of Common Stock, par value \$0.0001 per share ("Common Stock") and 10,000,000 shares of Preferred Stock, par value \$0.0001 per share ("Preferred Stock"). Upon the effectiveness of this Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Corporation, each [*] shares of the Corporation's Common Stock issued and outstanding at such time shall, automatically and without any further action on the part of the Corporation or the holder thereof, be combined into one (1) validly issued, fully paid and non-assessable share of Common Stock (the "Reverse Stock Split"). The par value of the Common Stock following the Reverse Stock Split shall remain \$0.0001 per share. No fractional shares shall be issued, and, in lieu thereof, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock, as determined by the Board of Directors. Each certificate that immediately prior to the Effective Time represented shares of Common Stock (an "Old Certificate") shall thereafter represent that number of shares of Common Stock into which the shares of Common Stock represented by the Old Certificate shall have been combined, subject to the elimination of fractional share interests as described above.
- FOURTH:** This Amendment shall be effective as of [a date to be determined by the Board], at 12: 01 a.m., Eastern Time (the "Effective Time").

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to the Amended and Restated Certificate of Incorporation to be executed by Geert Cauwenbergh, its Chief Executive Officer, this day of , 2016.

RXi PHARMACEUTICALS CORPORATION

By: _____
Name: Geert Cauwenbergh, Dr. Med. Sc.
Title: President and Chief Executive Officer

* By approving this amendment, stockholders are approving the combination of a whole number of shares of common stock between and including two (2) and forty (40), with the exact number to be determined by the Board, into one (1) share of common stock. The Certificate of Amendment filed with the Secretary of State of the State of Delaware, if at all, will include only that number within the range approved by the stockholders and determined by the Board of Directors to be in the best interest of the Corporation and its stockholders.

RXi Pharmaceuticals Corporation

IMPORTANT SPECIAL MEETING INFORMATION

000004

ENDORSEMENT_LINE _____ SACKPACK _____
[Barcode]

MR A SAMPLE
DESIGNATION (IF ANY)
ADD 1
ADD 2
ADD 3
ADD 4
ADD 5
ADD 6



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Electronic Voting Instructions

Available 24 hours a day, 7 days a week!

Instead of mailing your proxy, you may choose one of the voting methods outlined below to vote your proxy.

VALIDATION DETAILS ARE LOCATED BELOW IN THE TITLE BAR.

Proxies submitted by the Internet or telephone must be received by 11:59 p.m., Eastern Time, on April 13, 2016.



Vote by Internet

- Go to www.envisionreports.com/RXII
- Or scan the QR code with your smartphone
- Follow the steps outlined on the secure website

Vote by telephone

- Call toll free 1-800-652-VOTE (8683) within the USA, US territories & Canada on a touch tone telephone
- Follow the instructions provided by the recorded message

Using a **black ink** pen, mark your votes with an X as shown in this example.
Please do not write outside the designated areas.

Special Meeting Proxy Card

1234 5678 9012 345

▼ IF YOU HAVE NOT VOTED VIA THE INTERNET OR TELEPHONE, FOLD ALONG THE PERFORATION, DETACH AND RETURN THE BOTTOM PORTION IN THE ENCLOSED ENVELOPE. ▼

A Proposals — The Board of Directors recommends that you vote FOR the following proposals:

- | | For | Against | Abstain |
|---|--------------------------|--------------------------|--------------------------|
| 1. Approve an amendment to the Company's Amended and Restated Certificate of Incorporation to effect a reverse stock split of the Company's common stock, at a ratio of not less than 1-for-2 and not greater than 1-for-40, with the exact ratio and effective time of the reverse stock split to be determined by the Company's Board of Directors. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Authorize the adjournment of the Special Meeting, if necessary or appropriate, if a quorum is present, to solicit additional proxies if there are insufficient votes at the Special Meeting in favor of the reverse stock split. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



B Non-Voting Items

Change of Address — Please print your new address below.

Comments — Please print your comments below.

Meeting Attendance

[Empty box for Change of Address]

[Empty box for Comments]

Mark the box to the right if you plan to attend the Special Meeting.

**▼ IF YOU HAVE NOT VOTED VIA THE INTERNET OR TELEPHONE, FOLD ALONG THE PERFORATION, DETACH AND RETURN THE
BOTTOM PORTION IN THE ENCLOSED ENVELOPE. ▼**

Proxy — RXi PHARMACEUTICALS CORPORATION

**Special Meeting of Stockholders
April 14, 2016 11:00 a.m.**

This proxy is solicited by the Board of Directors

The stockholder(s) hereby appoint Geert Cauwenbergh as proxy with the power to appoint his substitute, and hereby authorize him to represent and to vote, as designated on the reverse side of this ballot, all of the shares of Common Stock of RXi Pharmaceuticals Corporation that the stockholder(s) is/are entitled to vote at the 2016 Special Meeting of Stockholders to be held on April 14, 2016 at 257 Simarano Drive, Suite 101, Marlborough, Massachusetts 01752 11:00 a.m. local time, and at any adjournment or postponement thereof.

This proxy, when properly executed, will be voted in the manner directed herein. If no such direction is made, this proxy will be voted in accordance with the Board of Directors' recommendations and in the discretion of the proxy holders on all other matters that may come before the meeting.

Continued and to be signed on reverse side