Filed pursuant to Rule 433 of the Securities Act of 1933 Issuer Free Writing Prospectus dated June 17, 2020 Relating to the Preliminary Prospectus dated June 17, 2020 Registration Statement File No. 333-238822



Repare Therapeutics Inc., or the Company, has filed amendment no. 2 to the registration statement, or Amendment No. 2, on Form S-1 (File No. 333-238822), including a preliminary prospectus dated June 17, 2020, or the Preliminary Prospectus, with the Securities and Exchange Commission, or the SEC, for the offering to which this free writing prospectus relates. The Preliminary Prospectus can be accessed through the following link: <a href="https://www.sec.gov/Archives/edgar/data/1808158/000119312520171293/d908774ds1a.htm">https://www.sec.gov/Archives/edgar/data/1808158/000119312520171293/d908774ds1a.htm</a>. Amendment No. 2 was filed to update and supplement certain disclosures that had been provided in the preliminary prospectus dated June 15, 2020, or the Initial Preliminary Prospectus. Before you invest, you should read the Preliminary Prospectus and any other documents that the Company has filed with the SEC for more information about the Company and the offering.

The information set forth below supplements and is provided in addition to the information contained in the Initial Preliminary Prospectus. Please refer to the Preliminary Prospectus for a complete description of all updates and supplements to the Initial Preliminary Prospectus. All page number references refer to the Preliminary Prospectus.

Common stock to be offered 10,000,000 shares

Option to purchase additional common shares 1,500,000 shares

Expected initial public offering price per share Between \$18.00 and \$20.00 per share

Common shares to be outstanding after this offering 34,057,559 shares (35,557,559 shares if the underwriters exercise in full their option to purchase additional shares)

purchase additional shar

We estimate that the net proceeds from this offering will be approximately \$172.7 million (or approximately \$199.2 million if the underwriters exercise in full their option to purchase up to 1,500,000 additional common shares), based on an assumed initial public offering price of \$19.00 per share, the midpoint of the price range set forth on the cover page of the Preliminary Prospectus, after deducting estimated underwriting fees and commissions and estimated offering expenses payable by us.

We currently intend to use the net proceeds from this offering, together with our existing cash, as follows:

- approximately \$50.0 million to advance clinical development of RP-3500 through completion of our planned open-label Phase 1/2 clinical trial;
- approximately \$110.0 million to fund other research and development initiatives; and
- the remainder to fund working capital and other general corporate purposes.

After giving effect to (i) the sale of 10,000,000 common shares in this offering at an assumed initial public offering price of \$19.00 per share, the midpoint of the price range set forth on the cover page of the Preliminary Prospectus, and after deducting the estimated underwriting fees and commissions and estimated offering expenses payable by us, and (ii) the automatic exercise of the warrant held by an affiliate of Bristol Myers Squibb into an aggregate of 789,474 common shares, based on an assumed initial public offering price of \$19.00 per share, the midpoint of the price range set forth on the cover page of the Preliminary Prospectus, our pro forma as adjusted net tangible book value as of March 31, 2020 would have been \$265.6 million, or \$7.80 per share. This represents an immediate increase in pro forma as adjusted net tangible book value of \$4.45 per share to our existing shareholders and an immediate dilution of \$11.20 per share to new investors participating in this offering.

Update to "Risks Related to This Offering and Ownership of Our Common Shares" on Page 76

The following risk factor has been added to the Preliminary Prospectus:

Our amended and restated bylaws to be in effect following the completion of this offering designate specific courts in Canada and the United States as the exclusive forum for certain litigation that may be initiated by our shareholders, which could limit our shareholders' ability to obtain a favorable judicial forum for disputes with us.

Pursuant to our amended and restated bylaws to be in effect following the completion of this offering, unless we consent in writing to the selection of an alternative forum, the courts of the Province of Québec and the appellate courts therefrom shall, to the fullest extent permitted by law, be the sole and exclusive forum for: (a) any derivative action or proceeding brought on our behalf; (b) any action or proceeding asserting a claim for breach of fiduciary duty owed to us by any of our directors, officers or other employees; (c) any action or proceeding asserting a claim arising out of any provision of the Business Corporations Act (Québec) or the articles or our bylaws (as either may be amended from time to time); or (d) any action or proceeding asserting a claim otherwise related to our affairs, or the Canadian Forum Provision. The Canadian Forum Provision will not apply to any causes of action arising under the Securities Act or the Exchange Act. Our amended and restated bylaws to be in effect following the completion of this offering further provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act, or the U.S. Federal Forum

Use of proceeds

Dilution

Provision. In addition, our amended and restated bylaws to be in effect following the completion of this offering provide that any person or entity holding, owning or otherwise acquiring any interest in any of our securities is deemed to have notice of and consented to the Canadian Forum Provision and the U.S. Federal Forum Provision.

The Canadian Forum Provision and the U.S. Federal Forum Provision in our amended and restated bylaws to be in effect following the completion of this offering may impose additional litigation costs on shareholders in pursuing any such claims. Additionally, the forum selection clauses in our amended and restated bylaws to be in effect following the completion of this offering may limit our shareholders' ability to bring a claim in a judicial forum that they find favorable for disputes with us or our directors, officers or employees, which may discourage the filing of lawsuits against us and our directors, officers and employees, even though an action, if successful, might benefit our shareholders. In addition, while the Delaware Supreme Court ruled in March 2020 that federal forum selection provisions purporting to require claims under the Securities Act be brought

in federal court are "facially valid" under Delaware law, there is uncertainty as to whether other courts, including courts in Canada and other courts within the United States, will enforce our U.S. Federal Forum Provision. If the U.S. Federal Forum Provision is found to be unenforceable, we may incur additional costs associated with resolving such matters. The U.S. Federal Forum Provision may also impose additional litigation costs on shareholders who assert that the provision is not enforceable or invalid. The courts of the Province of Québec and the federal district courts of the United States of America may also reach different judgments or results than would other courts, including courts where a shareholder considering an action may be located or would otherwise choose to bring the action, and such judgments may be more or less favorable to us than our shareholders.

## Update to "Description of Share Capital" on Page 189

The following disclosure supplements the disclosure set forth in the Preliminary Prospectus:

## **Choice of Forum**

Our amended and restated bylaws to be in effect following the completion of this offering will provide that the courts of the Province of Québec and the appellate courts therefrom shall, to the fullest extent permitted by law, be the sole and exclusive forum for: (i) any derivative action or proceeding brought on our behalf; (ii) any action or proceeding asserting a claim for breach of a fiduciary duty owed by any of our directors, officers or other employees; (iii) any action or proceeding asserting a claim arising pursuant to any provision of the Business Corporations Act (Québec) or our articles or by-laws (as either may be amended from time to time); or (iv) any action or proceeding asserting a claim otherwise related to our affairs, provided that, the exclusive forum provision will not apply to suits brought to enforce any liability or duty created by the Securities Act, the Exchange Act or any other claim for which the U.S. federal courts have exclusive jurisdiction. Our amended and restated bylaws to be in effect following the completion of this offering further provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. It is possible that a court of law could rule that the choice of forum provision contained in our amended and restated bylaws is inapplicable or unenforceable if it is challenged in a proceeding or otherwise. For example, under the Securities Act, federal courts have concurrent jurisdiction over all suits brought to enforce any duty or liability created by the Securities Act, and investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder.

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The Company has filed a registration statement on Form S-1 (Registration No. 333-238822), including the Preliminary Prospectus, with the SEC for the offering to which this communication relates. Before you invest, you should read the Preliminary Prospectus in that registration statement and other documents the Company has filed with the SEC for more complete information about the Company and this offering. You may obtain the Preliminary Prospectus for free by visiting EDGAR on the SEC website at www.sec.gov. Alternatively, the Company, any underwriter or any dealer participating in the offering will arrange to send you the preliminary prospectus if you request it by contacting. Morgan Stanley & Co. LLC, Attention: Prospectus Department, 180 Varick Street, 2nd Floor, New York, New York 10014; Goldman Sachs & Co. LLC, Attention: Prospectus Department, 200 West Street, New York, NY 10282, by telephone: 1-866-471-2526 or by emailing prospectus-ny@ny.email.gs.com; Cowen and Company, LLC c/o Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, NY, 11717, Attn: Prospectus Department, by email at postsalemanualrequests@broadridge.com or by telephone at (833) 297-2926; or Piper Sandler & Co., Attn: Prospectus Department, 800 Nicollet Mall, J12S03, Minneapolis, Minnesota 55402, by telephone at 800-747-3924 or by email at prospectus@psc.com.