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

SCHEDULE 13D
Under the Securities Exchange Act of 1934
(Amendment No. 1)

Repare Therapeutics Inc.

(Name of Issuer)

COMMON STOCK

(Title of Class of Securities)

760273102

(CUSIP Number)

OrbiMed Advisors LLC

OrbiMed Capital GP VII LLC

OrbiMed Capital LLC

**601 Lexington Avenue, 54th Floor
New York, NY 10022
Telephone: (212) 739-6400**

(Name, Address and Telephone Number of Person Authorized to
Receive Notices and Communications)

November 1, 2021

(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box.

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7(b) for other parties to whom copies are to be sent.

* The remainder of this cover page shall be filled out for a Reporting Person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

CUSIP No. 760273102

1	Names of Reporting Persons. OrbiMed Advisors LLC	
2	Check the Appropriate Box if a Member of a Group (See Instructions). (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) AF	
5	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6	Citizenship or Place of Organization Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 3,177,041
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 3,177,041
11	Aggregate Amount Beneficially Owned by Each Reporting Person 3,177,041	
12	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13	Percent of Class Represented by Amount in Row (11) 7.7%*	
14	Type of Reporting Person (See Instructions) IA	

* This percentage is calculated based upon 41,109,506 shares of common stock outstanding of Repare Therapeutics Inc. (the "Issuer"), as set forth in the Issuer's Rule 424(b)(5) Prospectus filed with the Securities and Exchange Commission ("SEC") on October 28, 2021.

CUSIP No. 760273102

1	Names of Reporting Persons. OrbiMed Capital GP VII LLC	
2	Check the Appropriate Box if a Member of a Group (See Instructions). (a) <input type="radio"/> (b) <input type="radio"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) AF	
5	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) <input type="radio"/>	
6	Citizenship or Place of Organization Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 3,177,041
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 3,177,041
11	Aggregate Amount Beneficially Owned by Each Reporting Person 3,177,041	
12	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="radio"/>	
13	Percent of Class Represented by Amount in Row (11) 7.7%*	
14	Type of Reporting Person (See Instructions) OO	

* This percentage is calculated based upon 41,109,506 shares of common stock outstanding of Repare Therapeutics Inc. (the "Issuer"), as set forth in the Issuer's Rule 424(b)(5) Prospectus filed with the Securities and Exchange Commission ("SEC") on October 28, 2021.

CUSIP No. 760273102

1	Names of Reporting Persons. OrbiMed Capital LLC	
2	Check the Appropriate Box if a Member of a Group (See Instructions). (a) <input type="radio"/> (b) <input type="radio"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) AF	
5	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) 0	
6	Citizenship or Place of Organization Cayman Islands	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 145,447
	8	Shared Voting Power 0
	9	Sole Dispositive Power 145,447
	10	Shared Dispositive Power 0
11	Aggregate Amount Beneficially Owned by Each Reporting Person 145,447	
12	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) 0	
13	Percent of Class Represented by Amount in Row (11) 0.4%*	
14	Type of Reporting Person (See Instructions) IA	

* This percentage is calculated based upon 41,109,506 shares of common stock outstanding of Repare Therapeutics Inc. (the "Issuer"), as set forth in the Issuer's Rule 424(b)(5) Prospectus filed with the Securities and Exchange Commission ("SEC") on October 28, 2021.

Item 1. Security and Issuer

This Amendment No. 1 (“Amendment No. 1”) to Schedule 13D supplements and amends the Statement on Schedule 13D of OrbiMed Advisors LLC, OrbiMed Capital GP VII LLC, and OrbiMed Capital LLC originally filed with the Securities and Exchange Commission (the “SEC”) on June 26, 2020 (the “Statement”). This Statement relates to the common stock, par value \$0.001 per share (the “Shares”) of Repare Therapeutics Inc., a corporation organized under the Business Corporations Act (Québec) (the “Issuer”), with its principal executive offices located at 7210 Frederick-Banting, Suite 100, Montréal, Québec, Canada H4S 2A1. The Shares are listed on the NASDAQ Global Market under the ticker symbol “RPTX” .. Information given in response to each item shall be deemed incorporated by reference in all other items, as applicable.

On November 1, 2021, the Issuer completed a public offering pursuant to which the Issuer agreed to issue and sell to the participants 4,000,000 Shares at a price to the public of \$22.00 per Share (the “Offering”). In addition, the Issuer granted the underwriters an option to purchase, at the public offering price less any underwriting discounts and commissions, up to an additional 600,000 Shares. The Reporting Persons (as defined below) did not participate in the Offering. As a result of the Offering, the Issuer’s total number of outstanding Shares increased to 41,109,506 (the “Outstanding Share Increase”). As a result of the Outstanding Share Increase and the transactions described in Item 5(c) below, the percentage of outstanding Shares that the Reporting Persons may be deemed to beneficially own was reduced by more than one percent of the Issuer’s Shares outstanding since the filing of the Statement.

Item 2. Identity and Background

(a) This Schedule 13D is being filed by OrbiMed Advisors LLC (“OrbiMed Advisors”), OrbiMed Capital GP VII LLC (“OrbiMed GP”) and OrbiMed Capital LLC (“OrbiMed Capital”) (collectively, the “Reporting Persons”).

(b) — (c), (f) OrbiMed Advisors, a limited liability company organized under the laws of Delaware and a registered investment adviser under the Investment Advisers Act of 1940, as amended, is the managing member or general partner of certain entities as more particularly described in Item 6 below. OrbiMed Advisors has its principal offices at 601 Lexington Avenue, 54th Floor, New York, New York 10022.

OrbiMed GP, a limited liability company organized under the laws of Delaware, is the general partner of a limited partnership as more particularly described in Item 6 below. OrbiMed GP has its principal offices at 601 Lexington Avenue, 54th Floor, New York, New York 10022.

OrbiMed Capital, a limited liability company organized under the laws of Delaware and a registered investment adviser under the Investment Advisers Act of 1940, as amended, is the investment adviser of certain entities as more particularly described in Item 6 below. OrbiMed Capital has its principal offices at 601 Lexington Avenue, 54th Floor, New York, New York 10022.

The directors and executive officers of OrbiMed Advisors, OrbiMed Capital, and OrbiMed GP are set forth on Schedules I, II, and III, respectively, attached hereto. Schedules I, II, and III set forth the following information with respect to each such person:

- (i) name;
- (ii) business address;
- (iii) present principal occupation of employment and the name, principal business and address of any corporation or other organization in which such employment is conducted; and
- (iv) citizenship.

(d) — (e) During the last five years, neither the Reporting Persons nor any Person named in Schedules I through III has been (i) convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors) or (ii) a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

Item 3. Source and Amount of Funds or Other Consideration

Not applicable.

Item 4. Purpose of Transaction

The Shares were initially acquired by the Reporting Persons for the purpose of making an investment in the Issuer and not with the intention of acquiring control of the Issuer's business on behalf of the Reporting Persons' respective advisory clients.

The Reporting Persons from time to time intend to review their investment in the Issuer on the basis of various factors, including the Issuer's business, financial condition, results of operations and prospects, general economic and industry conditions, the securities markets in general and those for the Issuer's Shares in particular, as well as other developments and other investment opportunities. Based upon such review, the Reporting Persons will take such actions in the future as the Reporting Persons may deem appropriate in light of the circumstances existing from time to time. If the Reporting Persons believe that further investment in the Issuer is attractive, whether because of the market price of Shares or otherwise, they may acquire Shares or other securities of the Issuer either in the open market or in privately negotiated transactions. Similarly, depending on market and other factors, the Reporting Persons may determine to dispose of some or all of the Shares currently owned by the Reporting Persons or otherwise acquired by the Reporting Persons either in the open market or in privately negotiated transactions.

Except as set forth in this Schedule 13D, the Reporting Persons have not formulated any plans or proposals which relate to or would result in: (a) the acquisition by any person of additional securities of the Issuer or the disposition of securities of the Issuer, (b) an extraordinary corporate transaction, such as a merger, reorganization or liquidation, involving the Issuer or any of its subsidiaries, (c) a sale or transfer of a material amount of the assets of the Issuer or any of its subsidiaries, (d) any change in the present Board of Directors or management of the Issuer, including any plans or proposals to change the number or term of directors or to fill any existing vacancies on the board, (e) any material change in the Issuer's capitalization or dividend policy of the Issuer, (f) any other material change in the Issuer's business or corporate structure, (g) any change in the Issuer's charter or bylaws or other instrument corresponding thereto or other action which may impede the acquisition of control of the Issuer by any person, (h) causing a class of the Issuer's securities to be deregistered or delisted from a national securities exchange or to cease to be authorized to be quoted in an inter-dealer quotation system of a registered national securities association, (i) a class of equity securities of the Issuer becoming eligible for termination of registration pursuant to Section 12(g)(4) of the Act or (j) any action similar to any of those enumerated above.

Item 5. Interest in Securities of the Issuer

(a) — (b) The following disclosure is based upon 41,109,506 outstanding Shares of the Issuer, as set forth in the Issuer's Rule 424(b)(5) Prospectus filed with the Securities and Exchange Commission on October 28, 2021.

As of the date of this filing, OrbiMed Private Investments VII, LP ("OPI VII"), a limited partnership organized under the laws of Delaware, holds 3,177,041 Shares constituting approximately 7.7% of the issued and outstanding Shares. OrbiMed GP is the general partner of OPI VII, pursuant to the terms of the limited partnership agreement of OPI VII, and OrbiMed Advisors is the managing member of OrbiMed GP, pursuant to the terms of the limited liability company agreement of OrbiMed GP. As a result, OrbiMed Advisors and OrbiMed GP share power to direct the vote and disposition of the Shares held by OPI VII and may be deemed directly or indirectly, including by reason of their mutual affiliation, to be the beneficial owners of the Shares held by OPI VII. OrbiMed Advisors exercises this investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and W. Carter Neild, each of whom disclaims beneficial ownership of the Shares held by OPI VII.

In addition, OrbiMed Advisors and OrbiMed GP, pursuant to their authority under the limited partnership agreement of OPI VII, caused OPI VII to enter into the agreements referred to in Item 6 below.

As of the date of this filing, The Biotech Growth Trust PLC (“**BIOG**”), a publicly-listed investment trust organized under the laws of England, holds 49,257 Shares constituting approximately 0.1% of the issued and outstanding Shares. OrbiMed Capital is the investment advisor of BIOG. As a result, OrbiMed Capital has the power to direct the vote and disposition of the Shares held by BIOG and may be deemed directly or indirectly, including by reason of mutual affiliation, to be the beneficial owner of the Shares held by BIOG. OrbiMed Capital disclaims any beneficial ownership over the shares of the other Reporting Persons. OrbiMed Capital exercises this investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and W. Carter Neild, each of whom disclaims beneficial ownership of the Shares held by BIOG.

As of the date of this filing, OrbiMed Partners Master Fund Limited (“**OPM**”), an exempted company organized under the laws of Bermuda, holds 96,190 Shares constituting approximately 0.2% of the issued and outstanding Shares. OrbiMed Capital is the investment advisor of OPM. As a result, OrbiMed Capital has the power to direct the vote and disposition of the Shares held by OPM and may be deemed directly or indirectly, including by reason of mutual affiliation, to be the beneficial owner of the Shares held by OPM. OrbiMed Capital disclaims any beneficial ownership over the shares of the other Reporting Persons. OrbiMed Capital exercises this investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and W. Carter Neild, each of whom disclaims beneficial ownership of the Shares held by OPM.

(c) The following sales were made pursuant to 10b5-1 trading plans established by the relevant Seller.

Seller	Date of Transaction	Transaction	Number of Shares	Price Per Share
OPI VII	August 30, 2021	Sold	6,500	\$33.92
OPM	August 30, 2021	Sold	197	\$33.92
BIOG	August 30, 2021	Sold	101	\$33.92
OPI VII	August 31, 2021	Sold	8,223	\$33.94
OPM	August 31, 2021	Sold	249	\$33.94
BIOG	August 31, 2021	Sold	128	\$33.94
OPI VII	September 1, 2021	Sold	12,586	\$33.98
OPM	September 1, 2021	Sold	382	\$33.98
BIOG	September 1, 2021	Sold	195	\$33.98
OPI VII	September 2, 2021	Sold	15,941	\$34.24
OPM	September 2, 2021	Sold	483	\$34.24
BIOG	September 2, 2021	Sold	248	\$34.24
OPI VII	September 3, 2021	Sold	6,985	\$34.00
OPM	September 3, 2021	Sold	212	\$34.00
BIOG	September 3, 2021	Sold	108	\$34.00
OPI VII	September 7, 2021	Sold	861	\$33.93
OPM	September 7, 2021	Sold	26	\$33.93
BIOG	September 7, 2021	Sold	13	\$33.93

(d) Not applicable.

(e) Not applicable.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer

In addition to the relationships between the Reporting Persons described in Items 2 and 5 above, OrbiMed GP is the general partner of OPI VII, pursuant to the terms of the limited partnership agreement of OPI VII. Pursuant to this agreement and relationship, OrbiMed GP has discretionary investment management authority with respect to the assets of OPI VII. Such authority includes the power to vote and otherwise dispose of securities held by OPI VII. The number of outstanding Shares of the Issuer attributable to OPI VII is 3,177,041. OrbiMed GP, pursuant to its authority under the limited partnership agreement of OPI VII, may be considered to hold indirectly 3,177,041 Shares.

OrbiMed Advisors is the managing member of OrbiMed GP, pursuant to the terms of the limited liability company agreement of OrbiMed GP. Pursuant to these agreements and relationships, OrbiMed Advisors and OrbiMed GP have discretionary investment management authority with respect to the assets of OPI VII. Such authority includes the power of OrbiMed GP to vote and otherwise dispose of securities held by OPI VII. The number of outstanding Shares attributable to OPI VII is 3,177,041 Shares. OrbiMed Advisors, pursuant to its authority under the terms of the limited liability company agreement of OrbiMed GP, may also be considered to hold indirectly 3,177,041 Shares.

OrbiMed Capital is the investment advisor to OPM and BIOG. OrbiMed Capital may be deemed to have voting and investment power over the securities held by OPM and BIOG. Such authority includes the power of OrbiMed Capital to vote and otherwise dispose of securities held by OPM and BIOG. The number of outstanding Shares attributable to OPM is and to BIOG is 145,447 Shares. OrbiMed Capital, as the investment advisor to OPM and BIOG, may also be considered to hold indirectly 145,447 Shares.

David Bonita (“Bonita”), a member of OrbiMed Advisors, is a member of the Board of Directors of the Issuer and, accordingly, OrbiMed Advisors and OrbiMed GP may have the ability to affect and influence control of the Issuer. From time to time, Bonita may receive stock options or other awards of equity-based compensation pursuant to the Issuer’s compensation arrangements for non-employee directors. Pursuant to an agreement with OrbiMed Advisors and OrbiMed GP, Bonita is obligated to transfer any securities issued under any such stock options or other awards, or the economic benefit thereof, to OrbiMed Advisors and OrbiMed GP, which will in turn ensure that such securities or economic benefits are provided to OPI VII.

Registration Rights Agreement

In addition, OPI VII and certain other stockholders of the Issuer entered into an Amended and Restated Registration Rights Agreement with the Issuer (the “Registration Rights Agreement”), dated as of September 3, 2019. Pursuant to the Registration Rights Agreement and subject to the terms and conditions therein, the parties agreed that:

Demand Registration Rights

At any time beginning six months following the date of the completion of the IPO, the holders of at least a majority of the registrable securities then outstanding of the Issuer may make a written request that the Issuer register some or all of their registrable securities, subject to certain specified conditions and exceptions, including that the aggregated gross offering price of such offering must exceed \$50 million. The Issuer is required to use commercially reasonable efforts to effect the registration and will pay all registration expenses, other than underwriting discounts and commissions, related to any demand registration. The Issuer is not obligated to effect more than two of these registrations.

Piggyback Registration Rights

Whenever the Issuer proposes to file a registration statement under the Securities Act, including a registration statement on Form S-3 as discussed below, other than with respect to a demand registration or a registration statement on Forms S-4 or S-8, OPI VII will be entitled to notice of the registration and have the right, subject to limitations that the underwriters may impose on the number of Shares included in the registration, to include the Shares held by OPI VII in the registration.

Form S-3 Registration Rights

Pursuant to the Registration Rights Agreement, at any time after the Issuer is qualified to file a registration statement on Form S-3 under the Securities Act, and subject to limitations and conditions specified in the Registration Rights Agreement, any holder of the registrable securities then outstanding may make a written request that the Issuer prepare and file a registration statement on Form S-3 covering their Shares, so long as the aggregate price to the public equal or exceeds \$5,000,000. The Issuer is not obligated to effect more than two of these Form S-3 registrations in any 12-month period.

Lock-Up Agreement

In connection with the Offering, OPI VII, OPM and BIOG, and certain other stockholders entered into Lock-Up Agreements with the Issuer's underwriters. Pursuant to its Lock-Up Agreement, OPI VII, OPM and BIOG agreed that they will not, during the period ending 60 days after the date of the final prospectus supplement filed in connection with the Offering (the "Lock-Up Period"), directly or indirectly (1) sell, assign, transfer, pledge, contract to sell, or otherwise dispose of, any Shares or securities convertible into or exercisable or exchangeable for Shares with respect to which OPI VII, OPM or BIOG has or acquires the power of disposition or (2) enter into any swap or other agreement that transfers, in whole or in part, the economic risk of ownership of any such Shares.

After the Lock-Up Period expires, the Reporting Persons' Shares will be eligible for sale in the public market, subject to any applicable limitations under Rule 144 under the Securities Act, and other applicable U.S. securities laws.

The foregoing description of the Registration Rights Agreement and the Lock-Up Agreement does not purport to be complete and is qualified in its entirety by reference to the full text of the Registration Rights Agreement and Lock-Up Agreement, which are filed as Exhibits 2 and 3 and incorporated herein by reference.

Item 7. Material to Be Filed as Exhibits

Exhibit	Description
1.	Joint Filing Agreement among OrbiMed Advisors LLC, OrbiMed Capital LLC, and OrbiMed Capital GP VII LLC.
2.	Amended and Restated Registration Rights Agreement by and among the Issuer and each of the persons listed on Schedules A and B thereto, dated as of September 3, 2019 (incorporated by reference to Exhibit 4.2 to the Issuer's Registration Statement on Form S-1 (SEC 333-238822), filed with the SEC on May 29, 2020).
3.	Form of Lock-Up Agreement.

Signature

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Dated: November 2, 2021

ORBIMED ADVISORS LLC

By: /s/ Carl L. Gordon
Name: Carl L. Gordon
Title: Member

ORBIMED CAPITAL GP VII LLC

By: ORBIMED ADVISORS LLC, its managing member

By: /s/ Carl L. Gordon
Name: Carl L. Gordon
Title: Member of OrbiMed Advisors LLC

ORBIMED CAPITAL LLC

By: /s/ Carl L. Gordon
Name: Carl L. Gordon
Title: Member

SCHEDULE I

The names and present principal occupations of each of the executive officers and directors of OrbiMed Advisors LLC are set forth below. Unless otherwise noted, each of these persons is a United States citizen and has a business address of 601 Lexington Avenue, 54th Floor, New York, NY 10022.

<u>Name</u>	<u>Position with Reporting Person</u>	<u>Principal Occupation</u>
Carl L. Gordon	Member	Member OrbiMed Advisors LLC
Sven H. Borho German and Swedish Citizen	Member	Member OrbiMed Advisors LLC
Jonathan T. Silverstein	Member	Member OrbiMed Advisors LLC
W. Carter Neild	Member	Member OrbiMed Advisors LLC
Geoffrey C. Hsu	Member	Member OrbiMed Advisors LLC
C. Scotland Stevens	Member	Member OrbiMed Advisors LLC
David P. Bonita	Member	Member OrbiMed Advisors LLC
Trey Block	Chief Financial Officer	Chief Financial Officer OrbiMed Advisors LLC

SCHEDULE II

The names and present principal occupations of each of the executive officers and directors of OrbiMed Capital LLC are set forth below. Unless otherwise noted, each of these persons is a United States citizen and has a business address of 601 Lexington Avenue, 54th Floor, New York, NY 10022.

<u>Name</u>	<u>Position with Reporting Person</u>	<u>Principal Occupation</u>
Carl L. Gordon	Member	Member OrbiMed Capital LLC
Sven H. Borho German and Swedish Citizen	Member	Member OrbiMed Capital LLC
Jonathan T. Silverstein	Member	Member OrbiMed Capital LLC
W. Carter Neild	Member	Member OrbiMed Capital LLC
Geoffrey C. Hsu	Member	Member OrbiMed Capital LLC
C. Scotland Stevens	Member	Member OrbiMed Capital LLC
David P. Bonita	Member	Member OrbiMed Capital LLC
Trey Block	Chief Financial Officer	Chief Financial Officer OrbiMed Capital LLC

SCHEDULE III

The business and operations of OrbiMed Capital GP VII LLC are managed by the executive officers and directors of its managing member, OrbiMed Advisors LLC, set forth in Schedule I attached hereto.

EXHIBIT INDEX

Exhibit	Description
1.	Joint Filing Agreement among OrbiMed Advisors LLC, OrbiMed Capital LLC, and OrbiMed Capital GP VII LLC.
2.	Amended and Restated Registration Rights Agreement by and among the Issuer and each of the persons listed on Schedules A and B thereto, dated as of September 3, 2019 (incorporated by reference to Exhibit 4.2 to the Issuer's Registration Statement on Form S-1 (SEC 333-238822), filed with the SEC on May 29, 2020).
3.	Form of Lock-Up Agreement.

JOINT FILING AGREEMENT

The undersigned hereby agree that the Statement on Schedule 13D, dated November 2, 2021, with respect to the ordinary shares of Repare Therapeutics Inc. is filed on behalf of each of us pursuant to and in accordance with the provisions of Rule 13d-1(k) under the Securities Exchange Act of 1934, as amended. Each of the undersigned agrees to be responsible for the timely filing of this Statement, and for the completeness and accuracy of the information concerning itself contained therein. This Agreement may be executed in any number of counterparts, all of which taken together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the undersigned have executed this Agreement as of the 2nd day of November 2021.

ORBIMED ADVISORS LLC

By: /s/ Carl L. Gordon
Name: Carl L. Gordon
Title: Member

ORBIMED CAPITAL GP VII LLC

By: ORBIMED ADVISORS LLC, its managing member

By: /s/ Carl L. Gordon
Name: Carl L. Gordon
Title: Member of OrbiMed Advisors LLC

ORBIMED CAPITAL LLC

By: /s/ Carl L. Gordon
Name: Carl L. Gordon
Title: Member

LOCK-UP AGREEMENT

October 26, 2021

Morgan Stanley & Co. LLC
Goldman Sachs & Co. LLC
Cowen and Company, LLC
Piper Sandler & Co.

As Representatives of the several Underwriters
listed in Schedule I to the Underwriting Agreement
referred to below

c/o Morgan Stanley & Co. LLC
1585 Broadway
New York, NY 10036

c/o Goldman Sachs & Co. LLC
200 West Street
New York, NY 10282-2198

c/o Cowen and Company, LLC
599 Lexington Avenue
New York, NY 10022

c/o Piper Sandler & Co.
800 Nicollet Mall
Minneapolis, MN 55402

Ladies and Gentlemen:

The undersigned understands that you, as Representatives of the several Underwriters, propose to enter into an Underwriting Agreement (the “**Underwriting Agreement**”) with Repare Therapeutics Inc., a corporation continued under the *Business Corporations Act* (Québec) (the “**Company**”), providing for the public offering (the “**Public Offering**”) by the several Underwriters named in Schedule I to the Underwriting Agreement (the “**Underwriters**”), of common shares (the “**Shares**”) of the Company, no par value per share (the “**Common Shares**”). “**Representatives**” means, collectively, Morgan Stanley & Co. LLC, Goldman Sachs & Co. LLC, Cowen and Company, LLC and Piper Sandler & Co.

To induce the Underwriters that may participate in the Public Offering to continue their efforts in connection with the Public Offering, the undersigned hereby agrees that, without the prior written consent of the Representatives on behalf of the Underwriters, it will not, and will not publicly disclose an intention to, during the period commencing on the date hereof and ending 60 days after the date of the final prospectus supplement (the “**Prospectus**”) (such period, the “**Restricted Period**”) relating to the Public Offering, (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any Common Shares beneficially owned (as such term is used in Rule 13d-3 of the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”), by the undersigned or any other securities so owned convertible into or exercisable or exchangeable for Common Shares or (2) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the Common Shares, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Common Shares or such other securities, in cash or otherwise. The foregoing sentence shall not apply to:

(a) transactions relating to Common Shares or other securities acquired in the Public Offering or in open market transactions after the completion of the Public Offering, provided that no filing under Section 16(a) of the Exchange Act shall be required or shall be voluntarily made during the Restricted Period in connection with subsequent sales of Common Shares or other securities acquired in the Public Offering or in such open market transactions,

(b) transfers or distributions of Common Shares or any security convertible into or exercisable or exchangeable for Common Shares (i) as a bona fide gift or charitable contribution, (ii) by will or intestacy or to any member of the undersigned's immediate family or to a trust for the direct or indirect benefit of the undersigned and/or any member of the undersigned's immediate family, (iii) to any corporation, partnership, limited liability company or other business entity, all of the beneficial ownership interests of which, in each such case, are held by the undersigned or any member of the undersigned's immediate family, (iv) if the undersigned is an entity, to limited partners, members, shareholders or holders of similar equity interests in the undersigned or (v) if the undersigned is an entity, to another corporation, partnership, limited liability company, trust or other business entity that is an affiliate (as defined in Rule 405 promulgated under the Securities Act of 1933, as amended) of the undersigned, or to any investment fund or other entity controlled or managed by the undersigned or affiliated with the undersigned, provided that (A) each transferee or distributee shall sign and deliver a lock-up agreement substantially in the form of this agreement and (B) no filing under Section 16(a) of the Exchange Act, reporting a reduction in beneficial ownership of Common Shares, shall be required or shall be voluntarily made during the Restricted Period, and provided further that any such transfer shall not involve a disposition for value;

(c) transfers of Common Shares or any security convertible into or exercisable or exchangeable for Common Shares by operation of law pursuant to a qualified domestic order or other court order or in connection with a divorce settlement; provided that (i) any filing under Section 16(a) of the Exchange Act made during the Restricted Period shall clearly indicate in the footnotes thereto that (A) the filing relates to the circumstances described in this paragraph and (B) no securities were sold by the undersigned, and (ii) the undersigned does not otherwise voluntarily effect any other public filing or report regarding such transfers during the Restricted Period;

(d) (i) the exercise of options or other similar awards or the vesting or settlement of awards granted pursuant to the Company's equity incentive plans as described in the Prospectus (including the delivery and receipt of Common Shares, other awards or any securities convertible into or exercisable or exchangeable for Common Shares in connection with such exercise, vesting or settlement), or (ii) the transfer or disposition of Common Shares or any securities convertible into Common Shares by the undersigned to the Company (or the purchase and cancellation of same by the Company) upon a vesting or settlement event of the Company's securities or upon the exercise of options to purchase the Company's securities on a "cashless" or "net exercise" basis to the extent permitted by the instruments representing such options pursuant to the Company's equity incentive plans as described in the Prospectus, provided that (x) the Common Shares received upon exercise or settlement of the option are subject to the terms of this agreement, (y) no public disclosure or filing under Section 16(a) of the Exchange Act shall be voluntarily made during the Restricted Period and (z) to the extent a filing under Section 16(a) of the Exchange Act is required during the Restricted Period as a result of transfers in this paragraph, it shall clearly indicate that the filing relates to the circumstances described in this paragraph;

(e) transfers to the Company to the extent required in order to satisfy the exercise price and/or any income, employment tax withholding and remittance obligations upon the vesting or exercise of an option or other award granted under an equity incentive plan or share purchase plan of the Company described in the Prospectus or the conversion or exercise of a warrant of the Company described in the Prospectus; provided that (i) any filing under Section 16(a) of the Exchange Act made during the Restricted Period shall clearly indicate in the footnotes thereto that (A) the filing relates to the circumstances described in this paragraph and (B) no securities were sold by the undersigned, and (ii) the undersigned does not otherwise voluntarily effect any other public filing or report regarding such transfers during the Restricted Period;

(f) transfers to the Company in connection with the repurchase of Common Shares in connection with the termination of the undersigned's employment with the Company or other service relationship with the Company, provided that no public disclosure or filing under Section 16(a) of the Exchange Act shall be required or shall be voluntarily made during the Restricted Period;

(g) transactions pursuant to any trading plan pursuant to Rule 10b5-1 under the Exchange Act, entered into prior to the date hereof; provided that any filing under Section 16(a) of the Exchange Act made during the Restricted Period shall clearly indicate in the footnotes thereto that the filing relates to the circumstances described in this paragraph;

(h) the establishment or modification of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of Common Shares, provided that (i) such plan does not provide for the transfer of Common Shares during the Restricted Period and (ii) to the extent a public announcement or filing under the Exchange Act, if any, is required of or voluntarily made by or on behalf of the undersigned or the Company regarding the establishment of such plan, such announcement or filing shall include a statement to the effect that no transfer of Common Shares may be made under such plan during the Restricted Period; or

(i) transfers pursuant to a bona fide third-party tender offer for all outstanding Common Shares or securities convertible into or exercisable or exchangeable for Common Shares, merger, amalgamation, consolidation or other similar transaction approved by the Company's Board of Directors and made to all holders of the Company's securities involving a change of control of the Company (including, without limitation, the entering into any lock-up, voting or similar agreement pursuant to which the undersigned may agree to transfer, sell, tender or otherwise dispose of Common Shares or other such securities in connection with such transaction, or vote any Common Shares or other such securities in favor of any such transaction); provided that in the event that such tender offer, merger, amalgamation, consolidation or other such transaction is not completed, such securities held by the undersigned shall remain subject to the provisions of this agreement.

In addition, the undersigned agrees that (a) without the prior written consent of the Representatives on behalf of the Underwriters, it will not, during the Restricted Period, make any demand for or exercise any right with respect to, the registration of any Common Shares or any security convertible into or exercisable or exchangeable for Common Shares and (b) in connection with the Public Offering, it waives any and all notice requirements and rights with respect to the registration of any such Common Shares pursuant to any agreement, understanding or otherwise to which the undersigned is a party. In addition, the undersigned hereby waives any and all preemptive rights, participation rights, resale rights, rights of first refusal and similar rights that the undersigned may have in connection with the Public Offering or in connection with any reorganization that may be consummated before or in connection with the Public Offering. The undersigned also agrees and consents to the entry of stop transfer instructions with the Company's transfer agent and registrar against the transfer of the undersigned's Common Shares except in compliance with the foregoing restrictions.

For purposes of this agreement, (i) "immediate family" shall mean any relationship by blood, marriage, domestic partnership or adoption, not more remote than first cousin, and (ii) "change of control" shall mean the consummation of any bona fide third party tender offer, merger, amalgamation, consolidation or other similar transaction the result of which is that any "person" (as defined in Section 13(d)(3) of the Exchange Act), or group of persons, other than the Company, becomes the beneficial owner (as defined in Rules 13d-3 and 13d-5 of the Exchange Act) of greater than 50% of total voting power of all outstanding voting securities of the Company (or the surviving entity).

In the event that a release is granted to any Major Holder (as defined below) other than the undersigned relating to the lock-up restrictions set forth above for Common Shares, the same percentage of Common Shares held by the undersigned shall be immediately and fully released (the "**Pro-rata Release**") on the same terms from any remaining lock-up restrictions set forth herein. Notwithstanding the foregoing, no waiver or termination will constitute a Pro-rata Release, if: (a) such release is granted from such lockup restrictions to any individual party or parties (other than shareholders subject to Section 16 reporting with respect to the Company under the Exchange Act) to sell or otherwise transfer or dispose of Common Shares or other securities in an amount up to an aggregate of \$1,000,000, or (b) such waiver or termination, in full or in part, is in connection with any underwritten public offering, whether or not such offering or sale is wholly or partially a secondary offering of the Common Shares during the Restricted Period (a "**Follow-on Offering**"); provided that the undersigned, to the extent the undersigned has a contractual right to demand or require the registration of the undersigned's Common Shares or otherwise "piggyback" on a registration statement filed by the Company for the offer and sale of its Common Shares, (i) shall be offered the opportunity to participate on a pro rata basis consistent with such contractual rights in such Follow-on Offering and on pricing terms that are no less favorable than the terms of the Follow-on Offering or (ii) such contractual rights are waived pursuant to the terms thereof; and in the event the Underwriters make the determination to cut back the number of securities to be sold by shareholders in the Follow-on Offering, such cut back shall be on a basis consistent with such contractual rights.

Notwithstanding any other provisions of this Agreement, if the Representatives in their sole discretion determine that a record or beneficial owner of Common Shares, or other securities convertible into or exercisable or exchangeable for Common Shares, should be granted an early Pro-rata Release due to circumstances of emergency or hardship, then the undersigned shall not have any right to be granted a release pursuant to the terms of this paragraph. In the event that any percentage of such Common Shares released from the lock-up restrictions are subject to any restrictions of the type set forth in clause (1) or (2) of the second paragraph of this Agreement, the same restrictions shall be applicable to the release of the same percentage of Common Shares held by the undersigned. In the event that the undersigned is released from any of its obligations under this Agreement (pursuant to this paragraph), or by virtue of this Agreement (pursuant to this paragraph), becomes entitled to offer, pledge, sell, contract to sell, or otherwise dispose of any Common Shares prior to the date that is 60 days after the date of the Prospectus, the Representatives shall use their commercially reasonable efforts to provide notification of such to the undersigned within three business days thereof; provided that the failure to provide such notice shall not give rise to any claim or liability against the Representatives or the Underwriters. For purposes of this Agreement, each of the following persons is a “**Major Holder**”: each officer and director of the Company and each record or beneficial owner, as of the date hereof, of more than 1% of the outstanding shares of securities of the Company (for purposes of determining record or beneficial ownership of a shareholder, all shares of securities held by investment funds affiliated with such shareholders shall be aggregated).

The undersigned understands that the Company and the Underwriters are relying upon this agreement in proceeding toward consummation of the Public Offering. The undersigned further understands that this agreement is irrevocable and shall be binding upon the undersigned’s heirs, legal representatives, successors and assigns.

Whether or not the Public Offering actually occurs depends on a number of factors, including market conditions. Any Public Offering will only be made pursuant to an Underwriting Agreement, the terms of which are subject to negotiation between the Company and the Underwriters.

The undersigned understands that, if (i) the Representatives, on the one hand, or the Company, on the other hand, informs the other in writing, prior to the execution of the Underwriting Agreement, that it has determined not to proceed with the Public Offering, (ii) the Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the securities to be sold thereunder, (iii) the registration statement related to the Public Offering is withdrawn prior to the execution of the Underwriting Agreement or (iv) the Underwriting Agreement is not executed on or before November 30, 2021, then, in each case, this agreement shall automatically, and without any action on the part of any other party, be of no further force and effect, and the undersigned shall be automatically released from all obligations under this agreement.

The undersigned acknowledges and agrees that the Underwriters have not provided any recommendation or investment advice nor have the Underwriters solicited any action from the undersigned with respect to the Public Offering of the Shares and the undersigned has consulted their own legal, accounting, financial, regulatory and tax advisors to the extent deemed appropriate. The undersigned further acknowledges and agrees that, although the Underwriters may provide certain Regulation Best Interest and Form CRS disclosures or other related documentation to you in connection with the Public Offering, the Underwriters are not making a recommendation to you to participate in the Public Offering or sell any Shares at the price determined in the Public Offering, and nothing set forth in such disclosures or documentation is intended to suggest that any Underwriter is making such a recommendation. The undersigned further acknowledges and agrees that none of the Underwriters has made any recommendation or provided any investment or other advice to the undersigned with respect to this Lock-Up Agreement or the subject matter hereof, and the undersigned has consulted its own legal, accounting, financial, regulatory, tax and other advisors with respect to this Lock-Up Agreement and the subject matter hereof to the extent the undersigned has deemed appropriate.

This agreement shall be governed by and construed in accordance with the laws of the State of New York.

Very truly yours,

By: _____
Name:
Title:

[Signature Page to Lock-Up Agreement]
