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**SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

**SCHEDULE 13D**

Under the Securities Exchange Act of 1934

**(Amendment No. 5)\***

**REPARE THERAPEUTICS INC.**

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**(Name of Issuer)**

**Common Shares**

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**(Title of Class of Securities)**

**760273102**

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**(CUSIP Number)**

**Ansbert Gadicke**  
**c/o MPM BioImpact LLC, 339 Boylston Street, Suite 1100**  
**Boston, MA, 02116**  
**617-425-9200**

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

**01/02/2025**

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**(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.

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).

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**SCHEDULE 13D**

**CUSIP No. 760273102**

Name of reporting person

1

MPM BioVentures 2014, L.P.

2

Check the appropriate box if a member of a Group (See Instructions)

(a)  
 (b)

3 SEC use only  
Source of funds (See Instructions)

4 WC  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5   
Citizenship or place of organization

6 DELAWARE  
Sole Voting Power

7 1,394,624.00  
Number of Shares Beneficially Owned by Each Reporting Person With: Shared Voting Power

8 0.00  
Sole Dispositive Power

9 1,394,624.00  
Shared Dispositive Power

10 0.00  
Aggregate amount beneficially owned by each reporting person

11 1,394,624.00  
Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

12   
Percent of class represented by amount in Row (11)

13 3.3 %  
Type of Reporting Person (See Instructions)

14 PN

## SCHEDULE 13D

**CUSIP No.** 760273102

1 Name of reporting person  
MPM BioVentures 2014 (B), L.P.  
Check the appropriate box if a member of a Group (See Instructions)

2  (a)  
 (b)

3 SEC use only  
Source of funds (See Instructions)

4 WC  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5   
Citizenship or place of organization

6 DELAWARE  
Sole Voting Power

7

Shares	
Beneficially	93,019.00
Owned by	Shared Voting Power
Each	8
Reporting	0.00
Person	Sole Dispositive Power
With:	9
	93,019.00
	Shared Dispositive Power
	10
	0.00
	Aggregate amount beneficially owned by each reporting person
11	93,019.00
	Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)
12	<input type="checkbox"/>
	Percent of class represented by amount in Row (11)
13	0.2 %
	Type of Reporting Person (See Instructions)
14	PN

## SCHEDULE 13D

**CUSIP No.** 760273102

1	Name of reporting person
	MPM Asset Management Investors BV2014 LLC
	Check the appropriate box if a member of a Group (See Instructions)
2	<input type="checkbox"/> (a)
	<input checked="" type="checkbox"/> (b)
3	SEC use only
	Source of funds (See Instructions)
4	WC
	Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)
5	<input type="checkbox"/>
	Citizenship or place of organization
6	DELAWARE
	Sole Voting Power
7	48,001.00
Number of	Shared Voting Power
Shares	8
Beneficially	0.00
Owned by	Sole Dispositive Power
Each	9
Reporting	48,001.00
Person	Shared Dispositive Power
With:	10
	0.00
11	Aggregate amount beneficially owned by each reporting person

48,001.00

Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

12

Percent of class represented by amount in Row (11)

13

0.1 %

Type of Reporting Person (See Instructions)

14

OO

## SCHEDULE 13D

**CUSIP No.** 760273102

Name of reporting person

1

UBS Oncology Impact Fund L.P.

Check the appropriate box if a member of a Group (See Instructions)

2

(a)

(b)

3

SEC use only

Source of funds (See Instructions)

4

WC

Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5

Citizenship or place of organization

6

CAYMAN ISLANDS

Sole Voting Power

7

1,122,888.00

Number of  
Shares

Shared Voting Power

Beneficially 8

0.00

Owned by

Sole Dispositive Power

Each

9

1,122,888.00

Reporting

Person

With:

Shared Dispositive Power

10

0.00

Aggregate amount beneficially owned by each reporting person

11

1,122,888.00

Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

12

Percent of class represented by amount in Row (11)

13

2.6 %

Type of Reporting Person (See Instructions)

14

PN

SCHEDULE 13D

CUSIP No. 760273102

1 Name of reporting person  
MPM BioVentures 2014 GP LLC  
Check the appropriate box if a member of a Group (See Instructions)

2  (a)  
 (b)

3 SEC use only  
Source of funds (See Instructions)

4 WC  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5   
Citizenship or place of organization

6 DELAWARE

7 Sole Voting Power  
0.00

Number of Shares Beneficially Owned by Each Reporting Person With: 8 Shared Voting Power  
1,487,643.00

9 Sole Dispositive Power  
0.00

10 Shared Dispositive Power  
1,487,643.00

11 Aggregate amount beneficially owned by each reporting person  
1,487,643.00

12 Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

13 Percent of class represented by amount in Row (11)  
3.5 %

14 Type of Reporting Person (See Instructions)  
OO

SCHEDULE 13D

CUSIP No. 760273102

1 Name of reporting person  
MPM BioVentures 2014 LLC  
Check the appropriate box if a member of a Group (See Instructions)

2  (a)  
 (b)

3 SEC use only  
Source of funds (See Instructions)

4 WC  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5   
Citizenship or place of organization

6 DELAWARE

7 Sole Voting Power

Number of Shares Beneficially Owned by Each Reporting Person With: 8 0.00  
Shared Voting Power

9 1,535,644.00  
Sole Dispositive Power

10 0.00  
Shared Dispositive Power

11 1,535,644.00  
Aggregate amount beneficially owned by each reporting person

12 Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

13   
Percent of class represented by amount in Row (11)

14 3.6 %  
Type of Reporting Person (See Instructions)

OO

## SCHEDULE 13D

**CUSIP No.** 760273102

1 Name of reporting person  
Oncology Impact Fund (Cayman) Management L.P.  
Check the appropriate box if a member of a Group (See Instructions)

2  (a)  
 (b)

3 SEC use only  
Source of funds (See Instructions)

4 WC  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5   
Citizenship or place of organization

6 CAYMAN ISLANDS

Number of Shares Beneficially Owned by Each Reporting Person With: 7 Sole Voting Power  
0.00

Owned by Each Reporting Person With:	8	Shared Voting Power
		1,122,888.00
		Sole Dispositive Power
	9	0.00
		Shared Dispositive Power
	10	1,122,888.00
11	Aggregate amount beneficially owned by each reporting person	
		1,122,888.00
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)	
		2.6 %
14	Type of Reporting Person (See Instructions)	
		PN

## SCHEDULE 13D

**CUSIP No.** 760273102

1	Name of reporting person	
	MPM BioImpact LLC	
	Check the appropriate box if a member of a Group (See Instructions)	
2	<input type="checkbox"/>	(a)
	<input checked="" type="checkbox"/>	(b)
3	SEC use only	
4	Source of funds (See Instructions)	
	WC	
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	
		Sole Voting Power
	7	0.00
		Shared Voting Power
Number of Shares Beneficially Owned by Each Reporting Person With:	8	1,122,888.00
		Sole Dispositive Power
	9	0.00
		Shared Dispositive Power
	10	1,122,888.00
11	Aggregate amount beneficially owned by each reporting person	
		1,122,888.00
12	Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)	

Percent of class represented by amount in Row (11)  
13 2.6 %  
Type of Reporting Person (See Instructions)  
14 OO

## SCHEDULE 13D

**CUSIP No.** 760273102

1 Name of reporting person  
ANSBERT GADICKE  
Check the appropriate box if a member of a Group (See Instructions)

2  (a)  
 (b)

3 SEC use only  
Source of funds (See Instructions)

4 WC  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5   
Citizenship or place of organization

6 UNITED STATES

7 Sole Voting Power  
0.00  
Number of Shares Beneficially Owned by Each Reporting Person With:  
8 Shared Voting Power  
2,658,532.00  
9 Sole Dispositive Power  
0.00  
10 Shared Dispositive Power  
2,658,532.00

11 Aggregate amount beneficially owned by each reporting person  
2,658,532.00  
Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

12   
Percent of class represented by amount in Row (11)

13 6.3 %  
Type of Reporting Person (See Instructions)

14 IN

## SCHEDULE 13D



1 Name of reporting person  
LUKE EVNIN  
Check the appropriate box if a member of a Group (See Instructions)

2  (a)  
 (b)

3 SEC use only  
Source of funds (See Instructions)

4 WC  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5

6 Citizenship or place of organization  
UNITED STATES  
Sole Voting Power  
7  
0.00  
Number of Shares Beneficially Owned by Each Reporting Person With:  
8 Shared Voting Power  
1,535,644.00  
9 Sole Dispositive Power  
0.00  
10 Shared Dispositive Power  
1,535,644.00  
Aggregate amount beneficially owned by each reporting person  
11  
1,535,644.00  
Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

12

13 Percent of class represented by amount in Row (11)  
3.6 %

14 Type of Reporting Person (See Instructions)  
IN

**Comment for Type of Reporting Person: 0**

SCHEDULE 13D

1 Name of reporting person  
Todd Foley  
Check the appropriate box if a member of a Group (See Instructions)

2  (a)  
 (b)

3 SEC use only

4 Source of funds (See Instructions)

WC

5 Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

6 Citizenship or place of organization

UNITED STATES

7 Sole Voting Power

Number of Shares Beneficially Owned by Each Reporting Person With:

8 0.00

9 Shared Voting Power

10 1,535,644.00

11 Sole Dispositive Power

12 0.00

13 Shared Dispositive Power

14 1,535,644.00

Aggregate amount beneficially owned by each reporting person

11 1,535,644.00

12 Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

13 Percent of class represented by amount in Row (11)

14 3.6 %

Type of Reporting Person (See Instructions)

IN

## SCHEDULE 13D

### Item 1. Security and Issuer

Title of Class of Securities:

(a) Common Shares

Name of Issuer:

(b) REPARE THERAPEUTICS INC.

Address of Issuer's Principal Executive Offices:

(c) 7171 FREDERICK BANTING, SUITE 270, BUILDING 2, SAINT-LAURENT, QUEBEC, CANADA , H4S 1Z9.

**Item 1** Explanatory Note: This Amendment No. 5 to Schedule 13D ('Amendment No. 5') is being filed as an amendment to  
**Comment:** the initial statement on Schedule 13D relating to the common shares (the 'Common Shares'), of Repare Therapeutics Inc. (the 'Issuer'), as filed with the Securities and Exchange Commission (the 'SEC') on July 6, 2020, as amended by Amendment No. 1 filed March 23, 2021, Amendment No. 2 filed May 25, 2021, Amendment No. 3 filed July 21, 2021 and Amendment No. 4 filed December 26, 2024 (as amended, the 'Original Schedule 13D'). This Schedule 13D/A is being filed by the Filing Persons to report the open market sales of the Issuer's Common Shares by certain Filing Persons. Items 5 and 7 of the Original Schedule 13D are hereby amended and supplemented to the extent hereinafter expressly set forth and, except as amended and supplemented hereby, the Original Schedule 13D remains in full force and effect. All capitalized terms used in this Amendment No. 5 but not defined herein shall have the meanings ascribed thereto in the Original Schedule 13D.

### Item 5. Interest in Securities of the Issuer

(a) See rows (11) and (13) of the Filing Persons Owner Profile of this Amendment No. 5 for the aggregate number of Common Shares and percentages of the shares of Common Shares beneficially owned by the Filing Person. The Common Shares are held as follows: \* 1,394,624 shares are held directly by BV 2014; \* 93,019 shares are held directly by BV 2014(B); \* 48,001 shares are held directly by AM BV2014 LLC; and \* 1,122,888 shares are held

directly by UBS Oncology. BV 2014 GP and BV 2014 LLC are the direct and indirect general partners of BV 2014 and BV 2014(B) and, accordingly, may be deemed to beneficially own the shares held by BV 2014 and BV 2014(B). BV 2014 LLC is the managing member of AM BV2014 LLC and, accordingly, may be deemed to beneficially own the shares held by AM BV2014 LLC. BioImpact and Oncology Cayman are the direct and indirect general partners of UBS Oncology and, accordingly, may be deemed to beneficially own the shares held by UBS Oncology. Drs. Gadické and Evnin and Mr. Foley are the managing directors of BV 2014 LLC and, accordingly, may be deemed to beneficially own the shares held by BV 2014, BV 2014(B) and AM BV2014 LLC. Dr. Gadické is the managing partner of BioImpact and, accordingly may be deemed to beneficially own the shares held by UBS Oncology. Calculation of the percentage of the shares of Common Shares beneficially owned is based upon 42,510,708 Common Shares outstanding as of November 1, 2024, as reported in the Issuer's Form 10-Q filed with the SEC on November 7, 2024.

(b) See rows (7) through (10) of the Filing Persons Owner Profile of this Amendment No. 5 for the number of shares as to which there is sole power to vote or to direct the vote, sole power to dispose or to direct the disposition, or shared power to dispose or to direct the disposition.

(c) The Reporting Persons sold the following Common Shares in the open market in the sixty days preceding the date of this filing: Date of Sale Price Range Ave. Price Sold by Sold by Sold By AM BV Sold by BV 2014 BV 2104(B) 2014 LLC UBS Oncology 12/24/24 \$1.29-\$1.355 \$1.32 15,265 1,018 526 12,291 12/26/24 \$1.295-\$1.37 \$1.32 25,303 1,688 871 20,373 12/27/24 \$1.25-\$1.32 \$1.28 33,166 2,212 1,142 26,703 12/30/24 \$1.2044-\$1.29\$1.23 48,204 3,215 1,660 38,812 12/31/24 \$1.2531-\$1.34\$1.29 80,548 5,372 2,773 64,853 1/2/25 \$1.30-\$1.38 \$1.35 69,616 4,643 2,397 56,052 1/3/25 \$1.305-\$1.41 \$1.38 64,849 4,325 2,233 52,214

(d) Inapplicable.

(e) Inapplicable.

Item 7. Material to be Filed as Exhibits.  
Joint Filing Statement

#### 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.

MPM BioVentures 2014, L.P.

Signature: /s/ Ansbert Gadické

Name/Title: Managing Director of MPM BioVentures 2014 LLC, the Managing Member of MPM BioVentures 2014 GP LLC, the General Partner of MPM BioVentures 2014, L.P.

Date: 01/06/2025

MPM BioVentures 2014 (B), L.P.

Signature: /s/ Ansbert Gadické

Name/Title: Managing Director of MPM BioVentures 2014 LLC, Managing Member of MPM BioVentures 2014 GP LLC, the General Partner of MPM BioVentures 2014 (B), L.P.

Date: 01/06/2025

MPM Asset Management Investors BV2014 LLC

Signature: /s/ Ansbert Gadické

Name/Title: Managing Director of MPM BioVentures 2014 LLC, the manager of MPM Asset Management Investors BV2014 LLC

Date: 01/06/2025

UBS Oncology Impact Fund L.P.

Signature: /s/ Ansbert Gadické

Name/Title: Managing Partner of MPM BioImpact LLC, the GP of Oncology Impact Fund (Cayman) Management L.P., the GP of UBS Oncology Impact Fund L.P.

Date: 01/06/2025

MPM BioVentures 2014 GP LLC

Signature: /s/ Ansbert Gadické

Managing Director of MPM BioVentures 2014  
Name/Title: LLC, the Managing Member of MPM  
BioVentures 2014 GP LLC  
Date: 01/06/2025

MPM BioVentures 2014 LLC

Signature: /s/ Ansbert Gadicke  
Name/Title: Managing Director  
Date: 01/06/2025

Oncology Impact Fund (Cayman) Management L.P.

Signature: /s/ Ansbert Gadicke  
Managing Partner of MPM BioImpact LLC, the  
Name/Title: General Partner of Oncology Impact Fund  
(Cayman) Management L.P.  
Date: 01/06/2025

MPM BioImpact LLC

Signature: /s/ Ansbert Gadicke  
Name/Title: Managing Partner  
Date: 01/06/2025

ANSBERT GADICKE

Signature: /s/ Ansbert Gadicke  
Name/Title: Ansbert Gadicke  
Date: 01/06/2025

LUKE EVNIN

Signature: /s/ Luke Evnin  
Name/Title: Luke Evnin  
Date: 01/06/2025

Todd Foley

Signature: /s/ Todd Foley  
Name/Title: Todd Foley  
Date: 01/06/2025

## Joint Filing Statement

I, the undersigned, hereby express my agreement that the attached Schedule 13D (and any amendments thereto) relating to the beneficial ownership by the undersigned of the equity securities of Repare Therapeutics Inc. is filed on behalf of each of the undersigned.

Date: January 6, 2025

### **MPM BioVentures 2014, L.P.**

By: MPM BioVentures 2014 GP LLC,  
its General Partner

By: MPM BioVentures 2014 LLC,  
Its Managing Member

By: /s/ Ansbert Gadicke

Name: Ansbert Gadicke

Title: Managing Director

### **MPM BioVentures 2014 (B), L.P.**

By: MPM BioVentures 2014 GP LLC,  
its General Partner

By: MPM BioVentures 2014 LLC,  
Its Managing Member

By: /s/ Ansbert Gadicke

Name: Ansbert Gadicke

Title: Managing Director

### **MPM Asset Management Investors BV 2014 LLC**

By: MPM BioVentures 2014 LLC  
Its: Manager

By: /s/ Ansbert Gadicke

Name: Ansbert Gadicke

Title: Managing Director



**MPM BioVentures 2014 GP, LLC**

By: MPM BioVentures 2014 LLC,  
Its Managing Member

By: /s/ Ansbert Gadicke  
Name: Ansbert Gadicke  
Title: Managing Director

**MPM BioVentures 2014 LLC**

By: /s/ Ansbert Gadicke  
Name: Ansbert Gadicke  
Title: Managing Director

**UBS Oncology Impact Fund, L.P.**

By: Oncology Impact Fund (Cayman) Management L.P.,  
its General Partner  
By: MPM BioImpact LLC,  
Its General Partner

By: /s/ Ansbert Gadicke  
Name: Ansbert Gadicke  
Title: Managing Partner

**Oncology Impact Fund (Cayman) Management L.P.**

By: MPM BioImpact LLC,  
Its General Partner

By: /s/ Ansbert Gadicke  
Name: Ansbert Gadicke  
Title: Managing Partner

**MPM BioImpact LLC**

By: /s/ Ansbert Gadicke  
Name: Ansbert Gadicke  
Title: Managing Partner

By: /s/ Todd Foley  
Name: Todd Foley

By: /s/ Luke Evnin  
Name: Luke Evnin

By: /s/ Ansbert Gadicke  
Name: Ansbert Gadicke