

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

SCHEDULE 13D

Under the Securities Exchange Act of 1934  
(Amendment No. 3)\*

**Novus Therapeutics, Inc.**

(Name of Issuer)

**Common Stock, par value \$0.001 per share**

(Title of Class of Securities)

**67011N 105**

(CUSIP Number)

**Bart Dzikowski  
Secretary of the Board  
Novartis Bioventures Ltd.  
Lichtstrasse 35  
CH-4056 Basel, Switzerland  
+41 61 324 3714**

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

**April 4, 2019**

(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 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, as amended ("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).

1. Names of Reporting Persons  
Novartis Bioventures Ltd.

2. Check the Appropriate Box if a Member of a Group

(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  
Switzerland

7. Sole Voting Power  
0

Number of  
Shares  
Beneficially  
Owned by  
Each  
Reporting  
Person With:

8. Shared Voting Power  
469,652

9. Sole Dispositive Power  
0

10. Shared Dispositive Power  
469,652

11. Aggregate Amount Beneficially Owned by Each Reporting Person  
469,652

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)  
4.98% (1)

14. Type of Reporting Person (See Instructions)  
CO

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(1) Based on 9,434,243 shares of Common Stock outstanding as of March 22, 2019, as reported in the Issuer's Annual Report on Form 10-K filed with the Securities and Exchange Commission (the "SEC") on March 28, 2019.

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1.	Names of Reporting Persons Novartis AG	
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2.	Check the Appropriate Box if a Member of a Group	
	(a)	<input type="checkbox"/>
	(b)	<input type="checkbox"/>

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3.	SEC Use Only	
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4.	Source of Funds (See Instructions) WC	
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5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)	<input type="checkbox"/>
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6.	Citizenship or Place of Organization Switzerland	
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	7.	Sole Voting Power 0	
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Number of Shares Beneficially Owned by Each Reporting Person With:	8.	Shared Voting Power 469,652	
	9.	Sole Dispositive Power 0	
	10.	Shared Dispositive Power 469,652	

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11.	Aggregate Amount Beneficially Owned by Each Reporting Person 469,652	
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12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)	<input type="checkbox"/>
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13.	Percent of Class Represented by Amount in Row (11) 4.98% (1)	
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14. Type of Reporting Person (See Instructions)  
CO

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(1) Based on 9,434,243 shares of Common Stock outstanding as of March 22, 2019, as reported in the Issuer's Annual Report on Form 10-K filed with the SEC on March 28, 2019.

**Item 1. Security and Issuer.**

This Amendment No. 3 (the "Amendment") to the Schedule 13D amends the Schedule 13D filed by the Reporting Persons (as defined below) with the SEC on October 1, 2014, as previously amended on May 16, 2017 and April 2, 2018 (the "Original Schedule 13D" and, together with the Amendment, the "Schedule 13D") and relates to the common stock, par value \$0.001 per share (the "Common Stock"), of Novus Therapeutics, Inc., a Delaware corporation (the "Issuer"). The address of the Issuer's principal executive office is 19900 MacArthur Blvd., Suite 550, Irvine, CA 92612.

Except as otherwise described herein, the information contained in the Original Schedule 13D remains in effect. Capitalized terms used but not defined in this Amendment shall have the respective meanings set forth with respect thereto in the Original Schedule 13D.

**Item 2. Identity and Background.**

No changes except as described below.

(a) – (c) and (f) This Schedule 13D is being filed by Novartis Bioventures Ltd. ("NBV") and Novartis AG ("Novartis"). NBV and Novartis are hereinafter sometimes collectively referred to as the "Reporting Persons." The name, business address, present principal occupation or employment and citizenship of the executive officers and members of the Board of Directors of each of the Reporting Persons is set forth on Schedule I hereto and is incorporated herein by reference. The principal business address of both NBV and Novartis is Lichtstrasse 35, CH-4056 Basel, Switzerland.

(d) - (e) Neither the Reporting Persons nor, to the best knowledge of each of them, any of the executive officers and members of the Board of Directors of each of the Reporting Persons set forth on Schedule I hereto during the last five years, (i) has been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors) or (ii) was 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 Amounts of Funds or Other Consideration.**

No changes.

**Item 4. Purpose of Transaction.**

No changes.

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

No changes except as described below.

(a) Based on 9,434,243 shares of Common Stock outstanding as of March 22, 2019, as reported in the Issuer's Annual Report on Form 10-K filed with the SEC on March 28, 2019, the Common Stock held by the Reporting Persons constitutes 4.98% of the outstanding shares of Common Stock of the Issuer.

(b) With respect to the number of shares of Common Stock as to which each Reporting Person has:

(i) sole power to vote or to direct the vote with respect to such shares of Common Stock, please see row 7 of the applicable cover sheet to this Amendment for such Reporting Person;

(ii) shared power to vote or to direct the vote with respect to such shares of Common Stock, please see row 8 of the applicable cover sheet to this Amendment for such Reporting Person;

(iii) sole power to dispose or direct the disposition of such shares of Common Stock, please see row 9 of the applicable cover sheet to this Amendment for such Reporting Person; and

(iv) shared power to dispose or to direct the disposition of such shares of Common Stock, please see row 10 of the applicable cover sheet to this Amendment for such Reporting Person.

(c) Other than the open market sales referred to below, none of (i) the Reporting Persons or, (ii) to the Reporting Persons' knowledge, the persons set forth on Schedule I hereto has effected any transaction in the Common Stock during the past 60 days.

On April 4, 2019, the Reporting Persons sold 5,200 shares of Common Stock at a weighted average price of \$4.27 per share (price range: \$4.20 - \$4.39).

On April 3, 2019, the Reporting Persons sold 4,500 shares of Common Stock at a weighted average price of \$4.27 per share (price range: \$4.16 - \$4.36).

On April 2, 2019, the Reporting Persons sold 6,000 shares of Common Stock at a weighted average price of \$4.21 per share (price range: \$4.15 - \$4.35).

On April 1, 2019, the Reporting Persons sold 4,843 shares of Common Stock at a weighted average price of \$4.20 per share (price range: \$4.15 - \$4.20).

On March 29, 2019, the Reporting Persons sold 1,478 shares of Common Stock at a price of \$4.15 per share.

On March 28, 2019, the Reporting Persons sold 2,000 shares of Common Stock at a price of \$4.05 per share.

On March 27, 2019, the Reporting Persons sold 2,000 shares of Common Stock at a price of \$4.05 per share.

On March 26, 2019, the Reporting Persons sold 2,000 shares of Common Stock at a weighted average price of \$4.04 per share (price range: \$4.00 - \$4.15).

On March 25, 2019, the Reporting Persons sold 1,800 shares of Common Stock at a weighted average price of \$4.06 per share (price range: \$4.05 - \$4.14).

The Reporting Persons undertake to provide the Issuer, any stockholder of the Issuer, or the Staff of the SEC, upon request, full information regarding the number of shares purchased at each separate price within the ranges set forth in this Item 5(c).

(d) Not applicable.

(e) As a result of the transactions described herein, on April 4, 2019, each of the Reporting Persons ceased to be the beneficial owner of more than five percent of the Common Stock of the Issuer. The filing of this Amendment represents the final amendment to the Original Schedule 13D and constitutes an exit filing for the Reporting Persons.

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

No changes.

**Item 7. Material to be Filed as Exhibits.**

Exhibit Number	Description
99.1	Agreement regarding joint filing of Schedule 13D

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**Signature**

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

Date: April 5, 2019

NOVARTIS BIOVENTURES LTD.

By: /s/ Bart Dzikowski  
Name: Bart Dzikowski  
Title: Secretary of the Board

By: /s/ Florian Muellershausen  
Name: Florian Muellershausen  
Title: Authorized Signatory

NOVARTIS AG

By: /s/ Bart Dzikowski  
Name: Bart Dzikowski  
Title: Authorized Signatory

By: /s/ Florian Muellershausen  
Name: Florian Muellershausen  
Title: Authorized Signatory



**SCHEDULE I****DIRECTORS AND EXECUTIVE OFFICERS OF  
NOVARTIS AG AND NOVARTIS BIOVENTURES LTD.***Directors and Executive Officers of Novartis AG*

The name, function, citizenship and present principal occupation or employment of each of the directors and executive officers of Novartis AG are set forth below. Unless otherwise indicated below, (i) each occupation set forth opposite an individual's name refers to employment with Novartis AG and (ii) the business address of each director and executive officer of Novartis AG is Novartis Campus, Lichtstrasse 35, CH-4056, Basel, Switzerland.

<b>Name</b>	<b>Relationship to Novartis AG</b>	<b>Present Principal Occupation</b>	<b>Citizenship</b>
Joerg Reinhardt, Ph.D.	Chairman of the Board of Directors	Chairman of the Board of Directors	German
Enrico Vanni, Ph.D.	Vice Chairman of the Board of Directors	Independent Consultant	Swiss
Nancy C. Andrews, M.D., Ph.D.	Director	Dean Emerita of the Duke University School of Medicine and Vice Chancellor Emerita for Academic Affairs at Duke University; Professor of Pediatrics, Pharmacology and Cancer Biology at Duke University	American
Patrice Bula	Director	Executive Vice President and Head of Strategic Business Units at Nestlé SA; Chairman of the board at Nespresso SA	Swiss
Ton Buechner	Director	Former CEO and Chairman of the executive board of AkzoNobel	Dutch
Srikant Datar, Ph.D.	Director	Arthur Lowes Dickinson Professor at the Graduate School of Business Administration at Harvard University	American
Elizabeth (Liz) Doherty	Director	Non-executive director and chairman of the audit committee of Dunelm Group plc; Member of the Supervisory Board and Audit Committee of Corbion NV	British
Ann Fudge	Director	Chair of the United States Program Advisory Panel of the Bill & Melinda Gates Foundation; Chair of WGBH Public Media; Director of Northrop Grumman Corporation	American

<b>Name</b>	<b>Relationship to Novartis AG</b>	<b>Present Principal Occupation</b>	<b>Citizenship</b>
Franz van Houten	Director	CEO and Chairman of the Executive Committee and the Board of Management of Royal Philips; Vice-Chairman and Member of the Supervisory Board of Philips Lighting	Dutch
Andreas von Planta, Ph.D.	Director	Chairman of HSBC Private Bank (Suisse) SA; Board member of Helvetia Holding AG; Chairman of the Regulatory Board of the SIX Swiss Exchange AG	Swiss
Charles L. Sawyers, M.D.	Director	Chair of the Human Oncology and Pathogenesis Program at Memorial Sloan-Kettering Cancer Center; Professor of Medicine and of Cell and Developmental Biology at the Weill Cornell Graduate School of Medical Sciences; Investigator at the Howard Hughes Medical Institute	American
William T. Winters	Director	CEO and a board member of Standard Chartered	British
Vasant (Vas) Narasimhan, M.D.	Member of the Executive Committee; Chief Executive Officer	Member of the Executive Committee, Chief Executive Officer	American
Steven Baert	Member of the Executive Committee; Head of Human Resources	Member of the Executive Committee, Head of Human Resources	Belgian
Susanne Schaffert, Ph.D.	Member of the Executive Committee; CEO, Novartis Oncology	Member of the Executive Committee; CEO, Novartis Oncology	German
Bertrand Bodson	Member of the Executive Committee; Chief Digital Officer	Member of the Executive Committee; Chief Digital Officer	Belgian
James (Jay) Bradner, M.D.	Member of the Executive Committee; President, Novartis Institutes for BioMedical Research	Member of the Executive Committee; President, Novartis Institutes for BioMedical Research; 250 Massachusetts Avenue, Cambridge, MA 02139, USA	American
Klaus Moosemayer, Ph.D.	Member of the Executive Committee; Chief Ethics, Risk and Compliance Officer	Member of the Executive Committee; Chief Ethics, Risk and Compliance Officer	German

Name	Relationship to Novartis AG	Present Principal Occupation	Citizenship
Paul Hudson	Member of the Executive Committee; CEO, Novartis Pharmaceuticals	Member of the Executive Committee; CEO, Novartis Pharmaceuticals	British
Harry Kirsch	Member of the Executive Committee; Chief Financial Officer	Member of the Executive Committee; Chief Financial Officer	German
Shannon Thyme Klinger	Member of the Executive Committee; Group General Counsel	Member of the Executive Committee; Group General Counsel	American
Steffen Lang, Ph.D.	Member of the Executive Committee; Global Head of Novartis Technical Operations	Member of the Executive Committee; Global Head of Novartis Technical Operations	German
John Tsai, M.D.	Member of the Executive Committee; Head of Global Drug Development and Chief Medical Officer	Member of the Executive Committee; Head of Global Drug Development and Chief Medical Officer	American
Robert Weltevreden	Member of the Executive Committee; Head of Novartis Business Services	Member of the Executive Committee; Head of Novartis Business Services	Dutch

Directors and Officers of Novartis Bioventures Ltd.

The name, address, citizenship and present principal occupation or employment of each of the directors and executive officers of Novartis Bioventures Ltd. are set forth below. Unless otherwise indicated below, (i) each occupation set forth opposite an individual's name refers to employment with Novartis Bioventures Ltd. and (ii) the business address of each director and executive officer of Novartis Bioventures Ltd. is Novartis Campus, Lichtstrasse 35, CH-4056, Basel, Switzerland.

<u>Name</u>	<u>Relationship to Novartis Bioventures Ltd.</u>	<u>Present Principal Occupation</u>	<u>Citizenship</u>
Prof. Dr. Patrick Aebischer	Chairman of the Board of Directors	President emeritus of the École Polytechnique Fédérale de Lausanne (EPFL); Member of the Board of Directors at Lonza AG, Nestlé S.A. and Logitech International S.A.	Swiss
Michael Gilman, Ph.D.	Director	Chief Executive Officer and Chairman of the Board at Arrakis Therapeutics, Inc.	American
Harry Kirsch	Director	Member of the Executive Committee of Novartis; Chief Financial Officer at Novartis	German
Prof. Dr. Christoph Meier	Director	Chief Medical Officer at the University Hospital Basel; Professor at the Medical Faculty of the University of Geneva	Swiss
Dr. Raj Parekh	Director	General Partner at Advent Life Sciences	British
James (Jay) Bradner, M.D.	Director	Member of the Executive Committee of Novartis; President, Novartis Institutes for BioMedical Research; 250 Massachusetts Avenue, Cambridge, MA 02139, USA	American
John Tsai, M.D.	Director	Member of the Executive Committee of Novartis; Head of Global Drug Development and Chief Medical Officer at Novartis	American

**Joint Filing Agreement**

In accordance with Rule 13d-1(k)(1) promulgated under the Securities Exchange Act of 1934, as amended, the undersigned hereby agree to the joint filing with each other on behalf of each of them of such a statement on Schedule 13D (including amendments thereto) with respect to the Common Stock beneficially owned by each of them of Novus Therapeutics, Inc. This Joint Filing Agreement shall be included as an Exhibit to such Schedule 13D.

IN WITNESS WHEREOF, the undersigned hereby execute this Joint Filing Agreement as of the 5<sup>th</sup> day of April, 2019.

NOVARTIS BIOVENTURES LTD.

By: /s/ Bart Dzikowski  
Name: Bart Dzikowski  
Title: Secretary of the Board

By: /s/ Florian Muellershausen  
Name: Florian Muellershausen  
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NOVARTIS AG

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