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Hoffman 2013 Descendants Trust)
712 Fifth Avenue, 51st Fl
New York, NY 10019
Tyndall Capital Partners, L.P.(3)
12,244,080 15.8 %
405 Park Avenue, Suite 1104
New York, NY 10022
683 Capital Partners, LP, 683 Capital Management, LLC, and Ari Zweiman(14)
16,503,169 20.6 %
3 Columbus Circle, Suite 2205
New York, NY 10019
Sabby Healthcare Master Fund, Ltd.,
561,163 5.21 %
Sabby Volatility Warrant Master Fund, Ltd., Sabby Management, LLC and

Hal Mintz(15)	
Sabby Healthcare Master Fund, Ltd.	
c/o Ogier Fiduciary Services (Cayman) Limited	
89 Nexus Way, Camana Bay	
Grand Cayman KY1-9007	
Cayman Islands	
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Name and Address of Beneficial Owner Sabby Volatility Warrant Master Fund, Ltd.	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned
c/o Ogier Fiduciary Services (Cayman) Limited 89 Nexus Way, Camana Bay Grand Cayman KY1-9007 Cayman Islands		
Sabby Management, LLC		
10 Mountainview Road, Suite 205 Upper Saddle River, New Jersey 07458		
Hal Mintz		
c/o Sabby Management, LLC 10 Mountainview Road, Suite 205 Upper Saddle River, New Jersey 07458		
Armistice Capital, LLC, Armistice Capital Master Fund Ltd., and Steven Boyd(16)	1,607,500	9.0%
Armistice Capital, LLC 510 Madison Avenue, 22nd Floor New York, New York 10022	2,000,000	
Armistice Capital Master Fund Ltd.		
c/o dms Corporate Services Ltd. 20 Genesis Close P.O. Box 314 Grand Cayman KY1-1104		
Cayman Islands Steven Boyd		
c/o Armistice Capital, LLC		
510 Madison Avenue, 22nd Floor New York, New York 10022		
EcoR1 Capital, LLC, Oleg Nodelman and EcoR1 Capital Fund Qualified, L.P.(17)	7,564,359	9.99%
Other Directors, Director Nominees and Named Executive Officers:	7,304,339	9.99 10
Henry S. Bienen, Ph.D.(5)	27,563	*
Jerome E. Groopman, M.D.(6)	11,110	*
Ramesh Kumar, Ph.D.(7)	379,658	*
Manoj Maniar, Ph.D.(8)	64,800	*
James J. Marino(9)	277,914	*
Steven M. Fruchtman, M.D.(10)		*
Viren Mehta(11)	78,076	*
E. Premkumar Reddy, Ph.D.(4)	20,002	
Jack E. Stover(12)	1,057,657	1.4%
All current executive officers, directors and director nominees as a group (11 persons)(13)	98,110	*
	7,897,458	9.7%

*

Represents a beneficial ownership of less than one percent of our outstanding Common Stock.

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- Includes (i) 396,633 shares of common stock issuable upon the exercise of warrants that are currently exercisable or exercisable within sixty days of the Record Date and (ii) 2,211,765 shares of common stock issuable upon the exercise of warrants for 55,294.125 shares of Series B Preferred Stock that convert into shares of common stock in the event that the stockholders approve the Authorized Shares Increase Proposal included in this proxy statement. Excluding the common stock issuable upon conversion of the shares of Series B Preferred Stock, The Michael and Jane Hoffman 2013 Descendants Trust would beneficially own 3,589,071 shares of common stock, which would be 4.6%.
- Includes (i) 5,831,116 shares of common stock beneficially owned by the Michael and Jane Hoffman 2013 Descendants Trust of which Mr. Hoffman is donor, (ii) 8,453 shares of common stock held by the Michael and Jane Hoffman 2013 Descendants Trust (Non-GST Exempt Trust) of which Mr. Hoffman is donor and (iii) 19,951 shares of common stock subject to outstanding options that are exercisable within 60 days of the Record Date. Also includes 2,211,765 shares of common stock issuable upon the exercise of warrants for 55,294.125 shares of Series B Preferred Stock owned by the Michael and Jane Hoffman 2013 Descendants Trust that convert into shares of common stock in the event that the stockholders approve the Authorized Shares Increase Proposal included in this proxy statement. Excluding the common stock issuable upon conversion of the shares of Series B Preferred Stock, Michael B. Hoffman would beneficially own 3,619,351 shares of common stock, which would be 4.6%. Mr. Hoffman has no voting or dispositive power with regard to any of the shares held by the Michael and Jane Hoffman 2013 Descendants Trust (Non-GST Exempt Trust). A.J. Agarwal and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael and Jane Hoffman 2013 Descendants Trust and the Michael a
- Based solely on a Form 4 (the "Tyndall Form 4") filed with the SEC on May 1, 2018, except that the 15.8% was calculated using the 12,244,080 shares held as of April 27, 2018 reported in the Tyndall Form 4 divided by 77,607,812 shares of common stock outstanding on the Record Date. The Tyndall Form 4 was filed on behalf of Tyndall Capital Partners, L.P. ("Tyndall Capital"), which is the general partner of Tyndall Partners, L.P. ("Tyndall"), and possesses the sole power to vote and the sole power to direct the disposition of all securities held by Tyndall. Tyndall Capital's interest in the securities reported herein is limited to the extent of its pecuniary interest in such securities, if any.
- Includes (i) 107,125 shares of common stock issuable upon the exercise of warrants and options that are currently exercisable or exercisable within sixty days of the Record Date and (ii) 282,350 shares of common stock issuable upon the exercise of warrants for 7,058.75 shares of Series B Preferred Stock that convert into shares of common stock in the event that the stockholders approve the Authorized Shares Increase Proposal included in this proxy statement. Excluding the common stock issuable upon conversion of the shares of Series B Preferred Stock, E. Premkumar Reddy, Ph.D would beneficially own 775,307 shares of common stock, which would be 1.0%.
- (5)
 Includes 14,839 shares of common stock issuable upon the exercise of warrants and options that are currently exercisable or exercisable within sixty days of the Record Date.
- (6)
 Includes 11,100 shares of common stock issuable upon the exercise of options that are currently exercisable or exercisable within sixty days of the Record Date.
- (7) Includes (i) 37,510 shares of common stock held by the Ramesh Kumar 2012 Trust and (ii) 277,431 shares of common stock subject to outstanding warrants and options that are exercisable within 60 days of the Record Date. Dr. Kumar has voting and dispositive power with regard to the shares held by the Ramesh Kumar 2012 Trust.
- (8) Includes 64,750 shares of common stock issuable upon the exercise of options that are currently exercisable or exercisable within sixty days of the Record Date.
- (9)
 Includes (i) 73,793 shares of common stock issuable upon the exercise of warrants and options that are currently exercisable or exercisable within sixty days of the Record Date and (ii) 58,900 shares

of common stock issuable upon the exercise of warrants for 1,472.50 shares of Series B Preferred Stock owned by James J Marino & Patricia H Marino JTWROS that convert into shares of common stock in the event that the stockholders approve the Authorized Shares Increase Proposal included in this proxy statement. Excluding the common stock issuable upon the conversion of the shares of Series B Preferred Stock, Mr. Marino would beneficially own 145,221 shares of common stock, which is less than 1%.

- (10)
 Includes 71,700 shares of common stock issuable upon the exercise of warrants and options that are currently exercisable or exercisable within sixty days of the Record Date.
- Includes (i) 2,844 shares of common stock held jointly with Dr. Mehta's spouse, (ii) 806 shares of common stock held by Mehta Partners, LLC, (iii) 174 shares of common stock held by Mehta Partners, LLC FBO Jean Marie Kiss IRA, (iv) 830 shares of common stock held by Viram Foundation and (v) 5,500 shares of common stock subject to outstanding options that are exercisable within 60 days of the Record Date. Dr. Mehta, as managing member, has voting and dispositive power with regard to the shares held by Mehta Partners, LLC. Dr. Mehta, as trustee, has voting and dispositive power with regard to the shares held by Viram Foundation.
- Includes (i) 3,910 shares of common stock issuable upon the exercise of warrants and options that are currently exercisable or exercisable within sixty days of the Record Date and (ii) 47,100 shares of common stock issuable upon the exercise of warrants for 1,177.50 shares of Series B Preferred Stock that convert into shares of common stock in the event that the stockholders approve the Authorized Shares Increase Proposal included in this proxy statement. Excluding the common stock issuable upon conversion of the shares of Series B Preferred Stock, Mr. Stover would beneficially own 51,020 shares of common stock, which is less than 1%.
- Includes (i) 1,544,231 shares of common stock issuable upon the exercise of warrants and options that are currently exercisable or exercisable within sixty days of the Record Date and (ii) 2,600,115 shares of common stock issuable upon the exercise of warrants for 65,002.88 shares of Series B Preferred Stock that convert into shares of common stock in the event that the stockholders approve the Authorized Shares Increase Proposal included in this proxy statement. Excluding the common stock issuable upon conversion of the shares of Series B Preferred Stock, all current executive officers and directors as a group would beneficially own 5,297,353, which would be 6.7%.
- (14)Based on a Schedule 14/A filed with the SEC on May 1, 2018 by (1) 683 Capital Partners, LP, a Delaware limited partnership ("683 Partners"), (2) 683 Capital Management, LLC, a Delaware limited liability company ("683 Management"), and (3) Ari Zweiman. 683 Partners holds the shares of common stock. 683 Capital GP, LLC, a Delaware limited liability company ("683 Capital GP"), serves as the general partner of 683 Partners. 683 Management serves as the investment manager of 683 Partners. Mr. Zweiman is the managing member of each of 683 Management and 683 Capital GP. As a result, 683 Management and Ari Zweiman may be deemed to beneficially own the shares held by 683 Partners. As of May 1, 2018, 683 Partners beneficially owned 16,503,169 shares of common stock, including 2,000,000 shares of common stock issuable upon the exercise of the Series A Warrant to purchase shares of Series A Convertible Preferred Stock and subsequent conversion of the Series A Preferred Stock, excluding 295,955.875 shares of Series B Convertible Preferred Stock of the Issuer (convertible into 11,838,235 shares of common stock) issuable upon exercise of a warrant to purchase such shares of Series B Convertible Preferred Stock of the Company, and based on 78,249,692 shares of common stock outstanding as reported in the Company's prospectus filed with the SEC on April 30, 2018 (assuming the full exercise of the Pre-Funded Warrants (as defined in the prospectus), constituting approximately 20.6% of the shares of common stock outstanding. By virtue of their respective relationships with 683 Partners, each of 683 Management and Mr. Zweiman may be deemed to beneficially own the shares of common stock owned directly by 683 Partners. 683 Management and Ari Zweiman disclaim beneficial ownership of such shares of common stock except to the extent of his or its pecuniary interest therein. 683 Partners has the sole power to vote or direct the vote of, and to dispose or direct the disposition of, the common stock owned by it. Each of 683 Management and

Mr. Zweiman share the power to vote or direct the vote of, and to dispose or direct the disposition of, the common stock beneficially owned by 683 Partners.

- Based solely on a Schedule 13G/A filed with the SEC on January 9, 2018. The Schedule 13G/A was filed by Sabby Healthcare Master Fund, Ltd., Sabby Volatility Master Fund, Ltd. and Sabby Management, LLC. According to the Schedule 13G/A, as of December 31, 2017: (i) Sabby Healthcare Master Fund, Ltd. and Sabby Volatility Master Fund, Ltd. beneficially own 440,300 and 120,863 shares of Common Stock, respectively, representing approximately 4.09% and 1.12% of Common Stock, respectively, and (ii) Sabby Management, LLC and Hal Mintz each beneficially own 561,163 shares of Common Stock, representing approximately 5.21% of Common Stock. Sabby Management, LLC and Hal Mintz do not directly own any shares of Common Stock, but each indirectly owns 561,163 shares of Common Stock. Sabby Management, LLC, a Delaware limited liability company, indirectly owns 561,163 shares of common stock because it serves as the investment manager of Sabby Healthcare Master Fund, Ltd. and Sabby Volatility Warrant Master Fund, Ltd., Cayman Islands companies. Mr. Mintz indirectly owns 561,163 shares of common stock in his capacity as manager of Sabby Management, LLC.
- Based solely on a Schedule 13G filed with the SEC on February 20, 2018. The Schedule 13G was filed by Armistice Capital, LLC, Armistice Capital Master Fund Ltd., and Steven Boyd. According to the Schedule 13G, Armistice Capital, LLC, Armistice Capital Master Fund Ltd. and Steven Boyd each had (i) sole power to vote or direct the vote of 0 share, (ii) shares power to vote or direct the vote of 1,607,500 shares of Common Stock, or 9.0% of outstanding shares of Common Stock, (iii) sole power to dispose or to direct the disposition of 0 share and (iv) shared power to dispose or direct the disposition of 1,607,500 shares of Common Stock, or 9.0% of outstanding shares of Common Stock.
- Based solely on a Schedule 13G filed with the SEC on May 7, 2018. The Schedule 13G was filed by EcoR1 Capital Fund Qualified, L.P. ("Qualified Fund"); EcoR1 Capital, LLC ("EcoR1") and Oleg Nodelman ("Nodelman") (collectively, the "EcoR1 Filers"). Qualified Fund filed jointly with the other EcoR1 Filers, but not as a member of a group and it expressly disclaims membership in a group. In addition, the Schedule 13G indicates that filing the Schedule 13G on behalf of Qualified Fund should not be construed as an admission that it is, and it disclaims that it is, a beneficial owner, as defined in Rule 13d-3 under the Exchange Act, of any of the shares covered by the Schedule 13G. Each EcoR1 Filer also disclaims beneficial ownership of the shares except to the extent of that person's pecuniary interest therein. The Schedule 13G reported that (i) EcoR1 had shared voting power with respect to 7,564,359 shares of common stock and shared dispositive power with respect to 7,564,359 shares of common stock, (ii) Nodelman had shared voting power with respect to 7,564,359 shares of common stock, and (iii)) Qualified Fund had shared voting power with respect to 6,195,966 shares of common stock and shared dispositive power with respect to 6,195,966 shares of common stock and shared dispositive power with respect to 6,195,966 shares of common stock.

HOUSEHOLDING OF PROXY MATERIALS

Certain banks, brokers, broker-dealers and other similar organizations acting as nominee record holders may be participating in the practice of "householding" proxy materials. This means that only one copy of this proxy statement may have been sent to multiple stockholders in your household. If you would prefer to receive separate copies of this proxy statement for other stockholders in your household, either now or in the future, please contact your bank, broker, broker-dealer or other similar organization serving as your nominee. Upon written or oral request to our Secretary at Onconova Therapeutics, Inc., 375 Pheasant Run, Newtown PA 18940, or via telephone to our Secretary at 267-759-3680, we will promptly provide separate copies of this proxy statement. Stockholders sharing an address who are receiving multiple copies of this proxy statement and who wish to receive a single copy of these materials in the future will need to contact their bank, broker, broker-dealer or other similar organization serving as their nominee to request that only a single copy of each document be mailed to all stockholders at the shared address in the future.

OTHER MATTERS

We do not know of any business other than that described in this Proxy Statement that will be presented for consideration or action by the stockholders at the Special Meeting. If, however, any other business is properly brought before the Special Meeting, shares represented by proxies will be voted in accordance with the best judgment of the persons named in the proxies or their substitutes.

By Order of the Board of Directors

/s/ RAMESH KUMAR

Ramesh Kumar

President and Chief Executive Officer

Newtown, PA May 17, 2018

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Appendix A

CERTIFICATE OF AMENDMENT TO TENTH AMENDED AND RESTATED CERTIFICATE OF INCORPORATION OF ONCONOVA THERAPEUTICS, INC.

ONCONOVA THERAPEUTICS, INC., a corporation organized and existing under the General Corporation Law of the State of Delaware (the "Corporation"), does hereby certify as follows:

FIRST: The name of the Corporation is Onconova Therapeutics, Inc. The Tenth Amended and Restated Certificate of Incorporation was originally filed with the Secretary of State of the State of Delaware (the "Secretary of State") on July 30, 2013, and has been amended by a Certificate of Amendment to the Tenth Amended and Restated Certificate of Incorporation filed with the Secretary of State on May 31, 2016, a Certificate of Designation of Preference, Rights and Limitations of Series A Convertible Preferred Stock filed with the Secretary of State on February 8, 2018, a Certificate of Amendment to the Tenth Amended and Restated Certificate of Incorporation, as amended, filed with the Secretary of State on March 21, 2018 and a Certificate of Designation of Preference, Rights and Limitations of Series B Convertible Preferred Stock filed with the Secretary of State on April 27, 2018 (the Tenth Amended and Restated Certificate of Incorporation, as so amended, the "Certificate of Incorporation").

SECOND: Article IV, Section A, of the Certificate of Incorporation is hereby amended and restated in its entirety as follows:

"A. Classes of Stock. The Corporation is authorized to issue two classes of capital stock to be designated, respectively, "Common Stock" and "Preferred Stock", each of which shall have a par value of \$0.01 per share. The total number of shares which the Corporation is authorized to issue is 255,000,000 shares, of which (i) 250,000,000 shares shall be designated as Common Stock and (ii) 5,000,000 shares shall be designated as Preferred Stock. Such stock may be issued from time to time by the Corporation for such consideration as may be fixed by the board of directors of the Corporation (the "Board of Directors")."

THIRD: The stockholders of the Corporation have duly approved the foregoing amendment in accordance with the provisions of Section 242 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be duly adopted and executed in its corporate name and on its behalf by its duly authorized officer as of the day of , 2018.

ONCONOVA THERAPEUTICS, INC.

By: ___

Name: Ramesh Kumar, Ph.D.

Title: President and Chief Executive Officer

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QuickLinks

PROPOSAL 1 APPROVAL OF INCREASE IN NUMBER OF AUTHORIZED SHARES OF COMMON STOCK

PROPOSAL 2 AUTHORIZATION TO ADJOURN THE SPECIAL MEETING

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

HOUSEHOLDING OF PROXY MATERIALS

OTHER MATTERS

Appendix A CERTIFICATE OF AMENDMENT TO TENTH AMENDED AND RESTATED CERTIFICATE OF INCORPORATION OF ONCONOVA THERAPEUTICS, INC.