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

Form 8-K

**CURRENT REPORT
Pursuant to Section 13 OR 15(d)
of the Securities Exchange Act of 1934**

Date of Report (Date of earliest event reported): February 28, 2020

SPERO THERAPEUTICS, INC.
(Exact Name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation)

001-38266
(Commission
File Number)

46-4590683
(IRS Employer
Identification No.)

**675 Massachusetts Avenue, 14th Floor
Cambridge, Massachusetts**
(Address of principal executive offices)

02139
(Zip Code)

Registrant's telephone number, including area code (857) 242-1600

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, \$0.001 par value per share	SPRO	The Nasdaq Global Select Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Item 3.03. Material Modification to Rights of Security Holders.

On February 11, 2020, Spero Therapeutics, Inc. (the “Company”) announced the commencement of a rights offering to holders of the Company’s common stock, par value \$0.001 per share (“Common Stock”), Series A Convertible Preferred Stock, par value \$0.001 per share (“Series A Preferred Stock”), and Series B Convertible Preferred Stock, par value \$0.001 per share (“Series B Preferred Stock”), as of the record date of February 10, 2020 (the “Rights Offering”). The terms of the Rights Offering are described in the Company’s prospectus supplement related thereto filed with the Securities and Exchange Commission on February 11, 2020.

In connection with the Rights Offering, the Company designated 3,333 shares of its authorized and unissued preferred stock as Series C Convertible Preferred Stock, par value \$0.001 per share (the “Series C Preferred Stock”), and filed a Certificate of Designation of Preferences, Rights and Limitations of Series C Convertible Preferred Stock (the “Certificate of Designation”) with the Delaware Secretary of State. Each share of Series C Preferred Stock is convertible into 1,000 shares of Common Stock (subject to adjustment as provided in the Certificate of Designation) at any time at the option of the holder, provided that the holder will be prohibited from converting the Series C Preferred Stock into shares of Common Stock if, as a result of such conversion, the holder, together with its affiliates, would own more than 9.99% of the total number of shares of Common Stock then issued and outstanding, subject to certain exceptions. In the event of the Company’s liquidation, dissolution, or winding up, holders of Series C Preferred Stock will receive a payment equal to \$0.001 per share of Series C Preferred Stock before any proceeds are distributed to the holders of Common Stock and *pari passu* with any distributions to the holders of Series A Preferred Stock and Series B Preferred Stock. Shares of Series C Preferred Stock will generally have no voting rights, except as required by law and except that the consent of holders of a majority of the then outstanding Series C Preferred Stock will be required to amend the terms of the Series C Preferred Stock. Shares of Series C Preferred Stock will be entitled to receive any dividends payable to holders of Common Stock, and will rank:

- senior to all of the Common Stock;
- senior to any class or series of capital stock of the Company created after the designation of the Series C Preferred Stock specifically ranking by its terms junior to the Series C Preferred Stock;
- on parity with all shares of Series A Preferred Stock, Series B Preferred Stock and any class or series of capital stock of the Company created after the designation of the Series C Preferred Stock specifically ranking by its terms on parity with the Series C Preferred Stock; and
- junior to any class or series of capital stock of the Company created after the designation of the Series C Preferred Stock specifically ranking by its terms senior to the Series C Preferred Stock;

in each case, as to distributions of assets upon the Company’s liquidation, dissolution or winding up whether voluntarily or involuntarily and/or the right to receive dividends.

The foregoing description of the Series C Preferred Stock does not purport to be complete and is qualified by reference to the Certificate of Designation, a copy of which is filed as Exhibit 3.1 to this Current Report on Form 8-K and is incorporated herein by reference.

Item 5.03. Amendments to Articles of Incorporation or Bylaws; Change in Fiscal Year.

On February 28, 2020, the Company filed the Certificate of Designation with the Delaware Secretary of State, a copy of which is attached hereto as Exhibit 3.1.

Item 8.01. Other Events.

In connection with the Rights Offering, the Company is filing the item included as Exhibit 5.1 to this Current Report on Form 8-K for the purpose of incorporating such item as an exhibit to the Company’s Registration Statement on Form S-3 (Registration No. 333-228661), to which the prospectus supplement dated February 11, 2020 relating to the Rights Offering is a part.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

Exhibit 3.1 [Certificate of Designation of Preferences, Rights and Limitations of Series C Convertible Preferred Stock.](#)

Exhibit 5.1 [Opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.](#)

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: February 28, 2020

SPERO THERAPEUTICS, INC.

By: /s/ Stephen DiPalma

Stephen DiPalma

Interim Chief Financial Officer and Treasurer

SPERO THERAPEUTICS, INC.
**CERTIFICATE OF DESIGNATION OF PREFERENCES,
RIGHTS AND LIMITATIONS
OF
SERIES C CONVERTIBLE PREFERRED STOCK**

PURSUANT TO SECTION 151 OF THE
DELAWARE GENERAL CORPORATION LAW

The undersigned, Ankit Mahadevia, does hereby certify that:

1. He is the President and Chief Executive Officer of Spero Therapeutics, Inc., a Delaware corporation (the "**Corporation**").
2. The Corporation is authorized to issue 10,000,000 shares of preferred stock, 3,220 of which have been designated.
3. The following resolutions were duly adopted by the board of directors of the Corporation (the "**Board of Directors**") in accordance with the provisions of Section 103 of the Delaware General Corporation Law (the "**DGCL**") does hereby certify that, in accordance with Section 151 of the DGCL, the following resolution was duly adopted by the Board of Directors of the Corporation or by a duly authorized committee thereof, on January 27, 2020:

WHEREAS, the Amended and Restated Certificate of Incorporation of the Corporation, as amended (the "**Certificate of Incorporation**"), provides for a class of its authorized stock known as preferred stock, consisting of 10,000,000 shares, \$0.001 par value per share, issuable from time to time in one or more series;

WHEREAS, the Board of Directors is authorized to fix the dividend rights, dividend rate, voting rights, conversion rights, rights and terms of redemption and liquidation preferences of any wholly unissued series of preferred stock and the number of shares constituting any series and the designation thereof, of any of them; and

WHEREAS, it is the desire of the Board of Directors, pursuant to its authority as aforesaid, to fix the rights, preferences, restrictions and other matters relating to a new series of the preferred stock, which shall consist of 3,333 shares of the preferred stock which the Corporation has the authority to issue, as follows:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors does hereby provide for the issuance of a series of preferred stock for cash or exchange of other securities, rights or property and does hereby fix and determine the rights, preferences, restrictions and other matters relating to such series of preferred stock as follows:

RESOLVED, pursuant to authority expressly set forth in the Amended and Restated Certificate of Incorporation of the Corporation, as amended (the "**Certificate of Incorporation**"), the issuance of a series of Preferred Stock designated as the Series C Convertible Preferred Stock, par value \$.001 per share, of the Corporation is hereby authorized and the designation, number of

shares, powers, preferences, rights, qualifications, limitations and restrictions thereof (in addition to any provisions set forth in the Certificate of Incorporation that are applicable to the Preferred Stock of all classes and series) are hereby fixed, and the Certificate of Designation of Preferences, Rights and Limitations of Series C Convertible Preferred Stock is hereby approved as follows:

SERIES C CONVERTIBLE PREFERRED STOCK

Section 1. Definitions. For the purposes hereof, the following terms shall have the following meanings:

“**Affiliate**” means any person or entity that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a person or entity, as such terms are used in and construed under Rule 144 under the Securities Act. With respect to a Holder, any investment fund or managed account that is managed on a discretionary basis by the same investment manager as such Holder will be deemed to be an Affiliate of such Holder.

“**Alternate Consideration**” shall have the meaning set forth in Section 7(b).

“**Beneficial Ownership Limitation**” shall have the meaning set forth in Section 6(c).

“**Business Day**” means any day except Saturday, Sunday, any day which shall be a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close.

“**Buy-In**” shall have the meaning set forth in Section 6(d)(iii).

“**Closing Sale Price**” means, for any security as of any date, the last closing trade price for such security prior to 4:00 p.m., New York City time, on the principal securities exchange or trading market where such security is listed or traded, as reported by Bloomberg, L.P. (or an equivalent, reliable reporting service mutually acceptable to and hereafter designated by Holders of a majority of the then-outstanding Series C Preferred Stock and the Corporation), or if the foregoing do not apply, the last trade price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, L.P., or, if no last trade price is reported for such security by Bloomberg, L.P., the average of the bid prices of any market makers for such security as reported on the OTC Pink Market by OTC Markets Group, Inc. If the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Sale Price of such security on such date shall be the fair market value as determined in good faith by the Board of Directors of the Corporation.

“**Commission**” means the U.S. Securities and Exchange Commission.

“**Common Stock**” means the Corporation’s common stock, par value \$.001 per share, and stock of any other class of securities into which such securities may hereafter be reclassified or changed into.

“**Conversion Date**” shall have the meaning set forth in Section 6(a).

“**Conversion Ratio**” shall have the meaning set forth in Section 6(b).

“**Conversion Shares**” means, collectively, the shares of Common Stock issuable upon conversion of the shares of Series C Preferred Stock in accordance with the terms hereof.

“**Daily Failure Amount**” means the product of (x).005 multiplied by (y) the Closing Sale Price of the Common Stock on the applicable Share Delivery Date.

“**Distributions**” shall have the meaning set forth in Section 5(a).

“**DTC**” shall have the meaning set forth in Section 6(a).

“**DWAC Delivery**” shall have the meaning set forth in Section 6(a).

“**Exchange Act**” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“**Fundamental Transaction**” shall have the meaning set forth in Section 7(b).

“**Holder**” means any holder of Series C Preferred Stock.

“**Junior Securities**” shall have the meaning set forth in Section 5(a).

“**Notice of Conversion**” shall have the meaning set forth in Section 6(a).

“**Parity Securities**” shall have the meaning set forth in Section 5(a).

“**Person**” means any individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“**Securities Act**” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“**Senior Securities**” shall have the meaning set forth in Section 5(a).

“**Series C Preferred Stock**” shall have the meaning set forth in Section 2(a).

“**Series C Preferred Stock Register**” shall have the meaning set forth in Section 2(b).

“**Share Delivery Date**” shall have the meaning set forth in Section 6(d)(i).

“**Trading Day**” means a day on which the Common Stock is traded for any period on the principal securities exchange or if the Common Stock is not traded on a principal securities exchange, on a day that the Common Stock is traded on another securities market on which the Common Stock is then being traded.

Section 2. Designation, Amount and Par Value; Assignment.

(a) The series of preferred stock designated by this Certificate of Designation shall be designated as the Corporation's Series C Convertible Preferred Stock (the "**Series C Preferred Stock**") and the number of shares so designated shall be 3,333. Each share of Series C Preferred Stock shall have a par value of \$.001 per share. The Series C Preferred Stock shall be issued in book-entry form, or if requested by any Holder, such Holder's shares may be issued in certificated form. To the extent that any shares of Series C Preferred Stock are issued in book-entry form, references herein to "certificates" shall refer to the book-entry notation relating to such shares.

(b) The Corporation shall register shares of the Series C Preferred Stock, upon records to be maintained by the Corporation for that purpose (the "**Series C Preferred Stock Register**"), in the name of the Holders thereof from time to time. The Corporation may deem and treat the registered Holder of shares of Series C Preferred Stock as the absolute owner thereof for the purpose of any conversion thereof and for all other purposes. The Corporation shall register the transfer of any shares of Series C Preferred Stock in the Series C Preferred Stock Register, upon surrender of the certificates evidencing such shares to be transferred, duly endorsed by the Holder thereof, to the Corporation at its address specified herein. Upon any such registration or transfer, a new certificate evidencing the shares of Series C Preferred Stock so transferred shall be issued to the transferee and a new certificate evidencing the remaining portion of the shares not so transferred, if any, shall be issued to the transferring Holder, in each case, within three Business Days. The provisions of this Certificate of Designation are intended to be for the benefit of all Holders from time to time and shall be enforceable by any such Holder.

Section 3. Dividends. Holders shall be entitled to receive, and the Corporation shall pay, dividends on shares of the Series C Preferred Stock equal (on an as-if-converted-to-Common-Stock basis, without regard to the Beneficial Ownership Limitation) to and in the same form, and in the same manner, as dividends (other than dividends in the form of Common Stock) actually paid on shares of the Common Stock when, as and if such dividends (other than dividends in the form of Common Stock) are paid on shares of the Common Stock. Other than as set forth in the previous sentence, no other dividends shall be paid on shares of Series C Preferred Stock, and the Corporation shall pay no dividends (other than dividends in the form of Common Stock) on shares of the Common Stock unless it simultaneously complies with the previous sentence.

Section 4. Voting Rights. Except as otherwise provided herein or in the Certificate of Incorporation, or as otherwise required by the DGCL, the Series C Preferred Stock shall have no voting rights. However, as long as any shares of Series C Preferred Stock are outstanding, the Corporation shall not, without the affirmative vote of the Holders of a majority of the then outstanding shares of the Series C Preferred Stock, (i) alter or change the powers, preferences or special rights given to the shares of Series C Preferred Stock so as to affect them adversely, (ii) issue further shares of Series C Preferred Stock or increase or decrease (other than by conversion) the number of authorized shares of Series C Preferred Stock, or (iii) enter into any agreement with respect to any of the foregoing.

Section 5. Rank; Liquidation.

(a) The Series C Preferred Stock shall rank: (i) senior to all of the Common Stock; (ii) senior to any class or series of capital stock of the Corporation hereafter created specifically ranking by its terms junior to any Series C Preferred Stock (“**Junior Securities**”); (iii) on parity with all shares of the Corporation’s Series A Convertible Preferred Stock and Series B Convertible Preferred Stock; (iv) on parity with any class or series of capital stock of the Corporation hereafter created specifically ranking by its terms on parity with the Series C Preferred Stock (together with the Corporation’s Series A Convertible Preferred Stock and Series B Convertible Preferred Stock, the “**Parity Securities**”); and (v) junior to any class or series of capital stock of the Corporation hereafter created specifically ranking by its terms senior to any Series C Preferred Stock (“**Senior Securities**”), in each case, as to distributions of assets upon liquidation, dissolution or winding up of the Corporation, whether voluntarily or involuntarily (all such distributions being referred to collectively as “**Distributions**”) and/or as to the right to receive dividends.

(b) Subject to the prior and superior rights of the holders of any Senior Securities of the Corporation, upon liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary, each holder of shares of Series C Preferred Stock shall be entitled to receive, in preference to any distributions of any of the assets or surplus funds of the Corporation to the holders of the Common Stock and Junior Securities and pari passu with any distribution to the holders of Parity Securities, an amount equal to \$.001 per share of Series C Preferred Stock, plus an additional amount equal to any dividends declared but unpaid on such shares, before any payments shall be made or any assets distributed to holders of any class of Common Stock or Junior Securities. If, upon any such liquidation, dissolution or winding up of the Corporation, the assets of the Corporation shall be insufficient to pay the holders of shares of the Series C Preferred Stock the amount required under the preceding sentence, then all remaining assets of the Corporation shall be distributed ratably to holders of the shares of the Series C Preferred Stock and Parity Securities. After such preferential payment, each holder of shares of Series C Preferred Stock shall be entitled to participate pari passu with the holders of Common Stock (on an as-converted basis, without regard to the Beneficial Ownership Limitation) and holders of Parity Securities in the remaining distribution of the net assets of the Corporation available for distribution.

Section 6. Conversion.

(a) Conversions at Option of Holder. Each share of Series C Preferred Stock shall be convertible, at any time and from time to time from and after the date of issuance, at the option of the Holder thereof, into a number of shares of Common Stock equal to the Conversion Ratio. Holders shall effect conversions by providing the Corporation with the form of conversion notice attached hereto as Annex A (a “**Notice of Conversion**”), duly completed and executed. Other than a conversion following a Fundamental Transaction or following a notice provided for under Section 7(d)(ii) hereof, the Notice of Conversion must specify at least a number of shares of Series C Preferred Stock to be converted equal to the lesser of (x) 100 shares (such number subject to appropriate adjustment following the occurrence of an event specified in Section 7(a) hereof) and (y) the number of shares of Series C Preferred Stock then held by the Holder. Provided the Corporation’s transfer agent is participating in the Depository Trust Company

(“**DTC**”) Fast Automated Securities Transfer program, the Notice of Conversion may specify, at the Holder’s election, whether the applicable Conversion Shares shall be credited to the account of the Holder’s prime broker with DTC through its Deposit Withdrawal Agent Commission system (a “**DWAC Delivery**”). The “**Conversion Date**”, or the date on which a conversion shall be deemed effective, shall be defined as the Trading Day that the Notice of Conversion, completed and executed, is sent by facsimile to, and received during regular business hours by, the Corporation; provided that the original certificate(s) (if applicable) representing such shares of Series C Preferred Stock being converted, duly endorsed, and the accompanying Notice of Conversion, are received by the Corporation within two (2) Trading Days thereafter. In all other cases, the Conversion Date shall be defined as the Trading Day on which the original share certificates (if applicable) of Series C Preferred Stock being converted, duly endorsed, and the accompanying Notice of Conversion, are received by the Corporation. The calculations set forth in the Notice of Conversion shall control in the absence of manifest or mathematical error.

(b) **Conversion Ratio.** The “**Conversion Ratio**” for each share of Series C Preferred Stock shall initially be 1,000 shares of Common Stock issuable upon the conversion of each share of Series C Preferred Stock (corresponding to a ratio of 1:1,000), subject to adjustment pursuant to Section 7.

(c) **Beneficial Ownership Limitation.** Notwithstanding anything herein to the contrary, the Corporation shall not effect any conversion of the Series C Preferred Stock, and a Holder shall not have the right to convert any portion of the Series C Preferred Stock, to the extent that, after giving effect to an attempted conversion set forth on an applicable Notice of Conversion, such Holder (together with such Holder’s Affiliates, and any other Person whose beneficial ownership of Common Stock would be aggregated with the Holder’s for purposes of Section 13(d) or Section 16 of the Exchange Act and the applicable regulations of the Commission, including any “group” of which the Holder is a member (the foregoing, “**Attribution Parties**”)) would beneficially own a number of shares of Common Stock in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by such Holder and its Attribution Parties shall include the number of shares of Common Stock issuable upon conversion of the Series C Preferred Stock subject to the Notice of Conversion with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which are issuable upon (A) conversion of the remaining, unconverted Series C Preferred Stock beneficially owned by such Holder or any of its Attribution Parties, and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Corporation (including any warrants) beneficially owned by such Holder or any of its Attribution Parties that are subject to a limitation on conversion or exercise similar to the limitation contained herein. For purposes of this Section 6(c), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the applicable regulations of the Commission. In addition, for purposes hereof, “group” has the meaning set forth in Section 13(d) of the Exchange Act and the applicable regulations of the Commission. For purposes of this Section 6(c), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as stated in the most recent of the following: (A) the Corporation’s most recent periodic or annual filing with the Commission, as the case may be, (B) a more recent public announcement by the Corporation that is filed with the Commission, or (C) a more recent notice by the Corporation or the Corporation’s transfer agent to the Holder setting forth the number of shares of Common

Stock then outstanding. Upon the written request of a Holder (which may be by email), the Corporation shall, within three (3) Trading Days thereof, confirm in writing to such Holder (which may be via email) the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to any actual conversion or exercise of securities of the Corporation, including shares of Series C Preferred Stock, by such Holder or its Attribution Parties since the date as of which such number of outstanding shares of Common Stock was last publicly reported or confirmed to the Holder. The “**Beneficial Ownership Limitation**” shall initially be 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock pursuant to such Notice of Conversion (to the extent permitted pursuant to this Section 6(c)). The Corporation shall be entitled to rely on representations made to it by the Holder in any Notice of Conversion regarding its Beneficial Ownership Limitation. Notwithstanding the foregoing, by written notice to the Corporation, which will not be effective until the sixty-first (61st) day after such notice is delivered to the Corporation, the Holder may reset the Beneficial Ownership Limitation percentage to a higher or lower percentage, not to exceed 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock pursuant to such Notice of Conversion. Upon such a change by a Holder of the Beneficial Ownership Limitation, the Beneficial Ownership Limitation may not be further amended by such Holder without first providing the minimum notice required by this Section 6(c). Notwithstanding the foregoing, at any time following notice of a Fundamental Transaction, the Holder may waive and/or change the Beneficial Ownership Limitation effective immediately upon written notice to the Corporation and may reinstitute the Beneficial Ownership Limitation at any time thereafter effective immediately upon written notice to the Corporation.

(d) Mechanics of Conversion.

- (i) Delivery of Certificate or Electronic Issuance Upon Conversion. Not later than three Trading Days after the applicable Conversion Date, or if the Holder requests the issuance of physical certificate(s), two (2) Trading Days after receipt by the Corporation of the original certificate(s) representing such shares of Series C Preferred Stock being converted, duly endorsed, and the accompanying Notice of Conversion (the “**Share Delivery Date**”), the Corporation shall (a) deliver, or cause to be delivered, to the converting Holder a physical certificate or certificates representing the number of Conversion Shares being acquired upon the conversion of shares of Series C Preferred Stock, or (b) in the case of a DWAC Delivery (if so requested by the Holder), electronically transfer such Conversion Shares by crediting the account of the Holder’s prime broker with DTC through its DWAC system. If in the case of any Notice of Conversion such certificate or certificates are not delivered to or as directed by or, in the case of a DWAC Delivery, such shares are not electronically delivered to or as directed by, the applicable Holder by the Share Delivery Date, the applicable Holder shall be entitled to elect to rescind such Notice of Conversion by written notice to the Corporation at any time on or before its receipt of such certificate or certificates for Conversion Shares or electronic receipt of such shares, as applicable, in which event the Corporation shall promptly return to such Holder any original Series C Preferred Stock certificate delivered to the Corporation and such Holder shall promptly return to the Corporation any Common Stock certificates or otherwise direct the return of any shares of Common Stock delivered to the Holder through the DWAC system, representing the shares of Series C Preferred Stock unsuccessfully tendered for conversion to the Corporation.

(ii) **Obligation Absolute.** Subject to Section 6(c) hereof and subject to Holder's right to rescind a Notice of Conversion pursuant to Section 6(d)(i) above, the Corporation's obligation to issue and deliver the Conversion Shares upon conversion of Series C Preferred Stock in accordance with the terms hereof are absolute and unconditional, irrespective of any action or inaction by a Holder to enforce the same, any waiver or consent with respect to any provision hereof, the recovery of any judgment against any Person or any action to enforce the same, or any setoff, counterclaim, recoupment, limitation or termination, or any breach or alleged breach by such Holder or any other Person of any obligation to the Corporation or any violation or alleged violation of law by such Holder or any other Person, and irrespective of any other circumstance which might otherwise limit such obligation of the Corporation to such Holder in connection with the issuance of such Conversion Shares. Subject to Section 6(c) hereof and subject to Holder's right to rescind a Notice of Conversion pursuant to Section 6(d)(i) above, in the event a Holder shall elect to convert any or all of its Series C Preferred Stock, the Corporation may not refuse conversion based on any claim that such Holder or anyone associated or affiliated with such Holder has been engaged in any violation of law, agreement or for any other reason, unless an injunction from a court, on notice to Holder, restraining and/or enjoining conversion of all or part of the Series C Preferred Stock of such Holder shall have been sought and obtained by the Corporation, and the Corporation posts a surety bond for the benefit of such Holder in the amount of 150% of the value of the Conversion Shares into which would be converted the Series C Preferred Stock which is subject to such injunction, which bond shall remain in effect until the completion of arbitration/litigation of the underlying dispute and the proceeds of which shall be payable to such Holder to the extent it obtains judgment. In the absence of such injunction, the Corporation shall, subject to Section 6(c) hereof and subject to Holder's right to rescind a Notice of Conversion pursuant to Section 6(d)(i) above, issue Conversion Shares upon a properly noticed conversion. If the Corporation fails to deliver to a Holder such certificate or certificates, or electronically deliver (or cause its transfer agent to electronically deliver) such shares in the case of a DWAC Delivery, pursuant to Section 6(d)(i) on or prior to the fifth (5th) Trading Day after the Share Delivery Date applicable to such conversion (other than a failure caused by incorrect or incomplete information provided by Holder to the Corporation), then, unless the Holder has rescinded the applicable Notice of Conversion pursuant to Section 6(d)(i) above, the Corporation shall pay (as liquidated damages and not as a penalty) to such Holder an amount payable, at the Corporation's option, either (a) in cash or (b) to the extent that it would not cause the Holder or its Attribution Parties to exceed the Beneficial Ownership Limitation, in shares of Common Stock that are valued for these purposes at the Closing Sale Price on the date of such calculation, in each case equal to the product of (x) the number of Conversion Shares required to

have been issued by the Corporation on such Share Delivery Date, (y) an amount equal to the Daily Failure Amount and (z) the number of Trading Days actually lapsed after such fifth (5th) Trading Day after the Share Delivery Date during which such certificates have not been delivered, or, in the case of a DWAC Delivery, such shares have not been electronically delivered; provided, however, the Holder shall only receive up to such amount of shares of Common Stock such that Holder and its Attribution Parties and any other persons or entities whose beneficial ownership of Common Stock would be aggregated with the Holder's for purposes of Section 13(d) of the Exchange Act (including shares held by any "group" of which the Holder is a member, but excluding shares beneficially owned by virtue of the ownership of securities or rights to acquire securities that have limitations on the right to convert, exercise or purchase similar to the limitation set forth herein) shall not collectively beneficially own greater than the Beneficial Ownership Limitation. Nothing herein shall limit a Holder's right to pursue actual damages for the Corporation's failure to deliver Conversion Shares within the period specified herein and such Holder shall have the right to pursue all remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief; provided that Holder shall not receive duplicate damages for the Corporation's failure to deliver Conversion Shares within the period specified herein. The exercise of any such rights shall not prohibit a Holder from seeking to enforce damages pursuant to any other Section hereof or under applicable law.

- (iii) Compensation for Buy-In on Failure to Timely Deliver Certificates Upon Conversion. If the Corporation fails to deliver to a Holder the applicable certificate or certificates or to effect a DWAC Delivery, as applicable, by the Share Delivery Date pursuant to Section 6(d)(i) (other than a failure caused by incorrect or incomplete information provided by Holder to the Corporation), and if after such Share Delivery Date such Holder is required by its brokerage firm to purchase (in an open market transaction or otherwise), or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by such Holder of the Conversion Shares which such Holder was entitled to receive upon the conversion relating to such Share Delivery Date (a "**Buy-In**"), then the Corporation shall (A) pay in cash to such Holder (in addition to any other remedies available to or elected by such Holder) the amount by which (x) such Holder's total purchase price (including any brokerage commissions) for the shares of Common Stock so purchased exceeds (y) the product of (1) the aggregate number of shares of Common Stock that such Holder was entitled to receive from the conversion at issue multiplied by (2) the actual sale price at which the sell order giving rise to such purchase obligation was executed (including any brokerage commissions) and (B) at the option of such Holder, either reissue (if surrendered) the shares of Series C Preferred Stock equal to the number of shares of Series C Preferred Stock submitted for conversion or deliver to such Holder the number of shares of Common Stock that would have been issued if the Corporation had timely complied with its delivery requirements under Section 6(d)(i). For example, if a Holder purchases shares of Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to

an attempted conversion of shares of Series C Preferred Stock with respect to which the actual sale price (including any brokerage commissions) giving rise to such purchase obligation was a total of \$10,000 under clause (A) of the immediately preceding sentence, the Corporation shall be required to pay such Holder \$1,000. The Holder shall provide the Corporation written notice, within three (3) Trading Days after the occurrence of a Buy-In, indicating the amounts payable to such Holder in respect of such Buy-In together with applicable confirmations and other evidence reasonably requested by the Corporation. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Corporation's failure to timely deliver certificates representing shares of Common Stock upon conversion of the shares of Series C Preferred Stock as required pursuant to the terms hereof; provided, however, that the Holder shall not be entitled to both (i) require the reissuance of the shares of Series C Preferred Stock submitted for conversion for which such conversion was not timely honored and (ii) receive the number of shares of Common Stock that would have been issued if the Corporation had timely complied with its delivery requirements under Section 6(d)(i).

- (iv) Reservation of Shares Issuable Upon Conversion. The Corporation covenants that it will at all times reserve and keep available out of its authorized and unissued shares of Common Stock for the sole purpose of issuance upon conversion of the Series C Preferred Stock, free from preemptive rights or any other actual contingent purchase rights of Persons other than the Holders of the Series C Preferred Stock, not less than such aggregate number of shares of the Common Stock as shall be issuable (taking into account the adjustments of Section 7) upon the conversion of all outstanding shares of Series C Preferred Stock. The Corporation covenants that all shares of Common Stock that shall be so issuable shall, upon issue, be duly authorized, validly issued, fully paid and non-assessable.
- (v) Fractional Shares. No fractional shares or scrip representing fractional shares of Common Stock shall be issued upon the conversion of the Series C Preferred Stock. As to any fraction of a share which a Holder would otherwise be entitled to receive upon such conversion, the Corporation shall pay a cash adjustment in respect of such fractional share of Common Stock in an amount equal to such fraction multiplied by the Closing Sale Price.
- (vi) Transfer Taxes. The issuance of certificates for shares of the Common Stock upon conversion of the Series C Preferred Stock shall be made without charge to any Holder for any documentary stamp or similar taxes that may be payable in respect of the issue or delivery of such certificates, provided that the Corporation shall not be required to pay any tax that may be payable in respect of any transfer involved in the issuance and delivery of any such certificate upon conversion in a name other than that of the registered Holder(s) of such shares of Series C Preferred Stock and the Corporation shall not be required to issue or deliver such certificates unless or until the Person or Persons requesting the issuance thereof shall have paid to the Corporation the amount of such tax or shall have established to the satisfaction of the Corporation that such tax has been paid.

(e) Status as Stockholder. Upon each Conversion Date: (i) the shares of Series C Preferred Stock being converted shall be deemed converted into shares of Common Stock; and (ii) the Holder's rights as a holder of such converted shares of Series C Preferred Stock shall cease and terminate, excepting only the right to receive certificates for such shares of Common Stock and to any remedies provided herein or otherwise available at law or in equity to such Holder because of a failure by the Corporation to comply with the terms of this Certificate of Designation. In all cases, the holder shall retain all of its rights and remedies for the Corporation's failure to convert Series C Preferred Stock.

Section 7. Certain Adjustments.

(a) Stock Dividends and Stock Splits. If the Corporation, at any time while this Series C Preferred Stock is outstanding: (A) pays a stock dividend or otherwise makes a distribution or distributions payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Corporation upon conversion of this Series C Preferred Stock) with respect to the then outstanding shares of Common Stock; (B) subdivides outstanding shares of Common Stock into a larger number of shares; or (C) combines (including by way of a reverse stock split) outstanding shares of Common Stock into a smaller number of shares, then the Conversion Ratio shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding any treasury shares of the Corporation) outstanding immediately after such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately before such event (excluding any treasury shares of the Corporation). Any adjustment made pursuant to this Section 7(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision or combination.

(b) Fundamental Transaction. If, at any time while this Series C Preferred Stock is outstanding, (A) the Corporation effects any merger or consolidation of the Corporation with or into another Person or any stock sale to, or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, share exchange or scheme of arrangement) with or into another Person (other than such a transaction in which the Corporation is the surviving or continuing entity and its Common Stock is not exchanged for or converted into other securities, cash or property), (B) the Corporation effects any sale of all or substantially all of its assets in one transaction or a series of related transactions, (C) any tender offer or exchange offer (whether by the Corporation or another Person) is completed pursuant to which more than 50% of the Common Stock not held by the Corporation or such Person is exchanged for or converted into other securities, cash or property, or (D) the Corporation effects any reclassification of the Common Stock or any compulsory share exchange pursuant (other than as a result of a dividend, subdivision or combination covered by Section 7(a) above) to which the Common Stock is effectively converted into or exchanged for other securities, cash or property (in any such case, a "**Fundamental Transaction**"), then, upon any subsequent conversion of this Series C Preferred Stock the Holders shall have the right to receive, in lieu of the right to receive

Conversion Shares, for each Conversion Share that would have been issuable upon such conversion immediately prior to the occurrence of such Fundamental Transaction, the same kind and amount of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of one share of Common Stock (the "**Alternate Consideration**"). For purposes of any such subsequent conversion, the determination of the Conversion Ratio shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Corporation shall adjust the Conversion Ratio in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holders shall be given the same choice as to the Alternate Consideration it receives upon any conversion of this Series C Preferred Stock following such Fundamental Transaction. To the extent necessary to effectuate the foregoing provisions, any successor to the Corporation or surviving entity in such Fundamental Transaction shall file a new Certificate of Designation with the same terms and conditions and issue to the Holders new preferred stock consistent with the foregoing provisions and evidencing the Holders' right to convert such preferred stock into Alternate Consideration. The terms of any agreement to which the Corporation is a party and pursuant to which a Fundamental Transaction is effected shall include terms requiring any such successor or surviving entity to comply with the provisions of this Section 7(b) and insuring that this Series C Preferred Stock (or any such replacement security) will be similarly adjusted upon any subsequent transaction analogous to a Fundamental Transaction. The Corporation shall cause to be delivered to each Holder, at its last address as it shall appear upon the stock books of the Corporation, written notice of any Fundamental Transaction at least 20 calendar days prior to the date on which such Fundamental Transaction is expected to become effective or close.

(c) Calculations. All calculations under this Section 7 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 7, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding any treasury shares of the Corporation) issued and outstanding.

(d) Notice to the Holders.

- (i) Adjustment to Conversion Ratio. Whenever the Conversion Ratio is adjusted pursuant to any provision of this Section 7, the Corporation shall promptly deliver to each Holder a notice setting forth the Conversion Ratio after such adjustment and setting forth a brief statement of the facts requiring such adjustment.
- (ii) Other Notices. If (A) the Corporation shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Corporation shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Corporation shall authorize the granting to all holders of the Common Stock of rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Corporation shall be required in connection with any reclassification of the

Common Stock, any consolidation or merger to which the Corporation is a party, any sale or transfer of all or substantially all of the assets of the Corporation, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Corporation shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Corporation, then, in each case, the Corporation shall cause to be filed at each office or agency maintained for the purpose of conversion of this Series C Preferred Stock, and shall cause to be delivered to each Holder at its last address as it shall appear upon the stock books of the Corporation, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange, provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice.

Section 8. Miscellaneous.

(a) Redemption. The Series C Preferred Stock is not redeemable.

(b) Notices. Any and all notices or other communications or deliveries to be provided by the Holders hereunder including, without limitation, any Notice of Conversion, shall be in writing and delivered personally, sent electronically (with confirmation of receipt), or sent by a nationally recognized overnight courier service, addressed to the Corporation, at 675 Massachusetts Ave., 14th Floor, Cambridge, MA 02139, Attention President and CEO, or such other address as the Corporation may specify for such purposes by notice to the Holders delivered in accordance with this Section. Any and all notices or other communications or deliveries to be provided by the Corporation hereunder shall be in writing and delivered personally, by facsimile, email, or sent by a nationally recognized overnight courier service addressed to each Holder at the facsimile number, email address or mailing address of such Holder appearing on the books of the Corporation, or if no such facsimile number, email address, or mailing address appears on the books of the Corporation, at the principal place of business of such Holder. Any notice or other communication or deliveries hereunder shall be deemed given and effective on the earliest of: (i) the date of transmission, if such notice or communication is delivered via facsimile or email prior to 5:30 p.m. (New York City time) on any date, (ii) the date immediately following the date of transmission, if such notice or communication is delivered via facsimile or email between 5:30 p.m. and 11:59 p.m. (New York City time) on any date, (iii) the second Business Day following the date of mailing, if sent by nationally recognized overnight courier service, or (iv) upon actual receipt by the party to whom such notice is required to be given.

(c) Lost or Mutilated Series C Preferred Stock Certificate. If a Holder's Series C Preferred Stock certificate shall be mutilated, lost, stolen or destroyed, the Corporation shall execute and deliver, in exchange and substitution for and upon cancellation of a mutilated certificate, or in lieu of or in substitution for a lost, stolen or destroyed certificate, a new certificate for the shares of Series C Preferred Stock so mutilated, lost, stolen or destroyed, but only upon receipt of evidence of such loss, theft or destruction of such certificate, and of the ownership thereof, reasonably satisfactory to the Corporation and, in each case, customary and reasonable indemnity, if requested. Applicants for a new certificate under such circumstances shall also comply with such other reasonable regulations and procedures and pay such other reasonable third-party costs as the Corporation may prescribe.

(d) Waiver. Any waiver by the Corporation or a Holder of a breach of any provision of this Certificate of Designation shall not operate as or be construed to be a waiver of any other breach of such provision or of any breach of any other provision of this Certificate of Designation or a waiver by any other Holders. The failure of the Corporation or a Holder to insist upon strict adherence to any term of this Certificate of Designation on one or more occasions shall not be considered a waiver or deprive that party (or any other Holder) of the right thereafter to insist upon strict adherence to that term or any other term of this Certificate of Designation. Any waiver by the Corporation or a Holder must be in writing. Notwithstanding any provision in this Certificate of Designation to the contrary, any provision contained herein and any right of the Holders of Series C Preferred Stock granted hereunder may be waived as to all shares of Series C Preferred Stock (and the Holders thereof) upon the written consent of the Holders of not less than a majority of the shares of Series C Preferred Stock then outstanding, unless a higher percentage is required by the DGCL, in which case the written consent of the Holders of not less than such higher percentage shall be required.

(e) Severability. If any provision of this Certificate of Designation is invalid, illegal or unenforceable, the balance of this Certificate of Designation shall remain in effect, and if any provision is inapplicable to any Person or circumstance, it shall nevertheless remain applicable to all other Persons and circumstances. If it shall be found that any interest or other amount deemed interest due hereunder violates the applicable law governing usury, the applicable rate of interest due hereunder shall automatically be lowered to equal the maximum rate of interest permitted under applicable law.

(f) Next Business Day. Whenever any payment or other obligation hereunder shall be due on a day other than a Business Day, such payment shall be made on the next succeeding Business Day.

(g) Headings. The headings contained herein are for convenience only, do not constitute a part of this Certificate of Designation and shall not be deemed to limit or affect any of the provisions hereof.

(h) Status of Converted Series C Preferred Stock. If any shares of Series C Preferred Stock shall be converted or reacquired by the Corporation, such shares shall resume the status of authorized but unissued shares of preferred stock and shall no longer be designated as Series C Preferred Stock.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Designation this 28th day of February, 2020.

By: /s/ Ankit Mahadevia, M.D.
Ankit Mahadevia, M.D.,
President and Chief Executive Officer

ANNEX A

NOTICE OF CONVERSION

(TO BE EXECUTED BY THE REGISTERED HOLDER
IN ORDER TO CONVERT SHARES OF SERIES C PREFERRED STOCK)

The undersigned Holder hereby irrevocably elects to convert the number of shares of Series C Preferred Stock indicated below, [represented by stock certificate No(s). (the "**Preferred Stock Certificates**") [represented in book-entry form], into shares of common stock, par value \$.001 per share (the "**Common Stock**"), of Spero Therapeutics, Inc., a Delaware corporation (the "**Corporation**"), as of the date written below. If securities are to be issued in the name of a person other than the undersigned, the undersigned will pay all transfer taxes payable with respect thereto. Capitalized terms utilized but not defined herein shall have the meaning ascribed to such terms in that certain Certificate of Designation of Preferences, Rights and Limitations of Series C Convertible Preferred Stock (the "**Certificate of Designation**") filed by the Corporation with the Secretary of State of the State of Delaware on _____, 2020.

As of the date hereof, the number of shares of Common Stock beneficially owned by the undersigned Holder (together with such Holder's Affiliates, and any other Person whose beneficial ownership of Common Stock would be aggregated with the Holder's for purposes of Section 13(d) or Section 16 of the Exchange Act and the applicable regulations of the Commission, including any "group" of which the Holder is a member (the foregoing, "**Attribution Parties**")), including the number of shares of Common Stock issuable upon conversion of the Series C Preferred Stock subject to this Notice of Conversion, but excluding the number of shares of Common Stock which are issuable upon (A) conversion of the remaining, unconverted Series C Preferred Stock beneficially owned by such Holder or any of its Attribution Parties, and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Corporation (including any warrants) beneficially owned by such Holder or any of its Attribution Parties that are subject to a limitation on conversion or exercise similar to the limitation contained in Section 6(c) of the Certificate of Designation, is []%. For purposes hereof, beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the applicable regulations of the Commission. In addition, for purposes hereof, "group" has the meaning set forth in Section 13(d) of the Exchange Act and the applicable regulations of the Commission.

Conversion calculations:

Date to Effect Conversion: _____

Number of shares of Series C Preferred Stock owned prior to Conversion: _____

Number of shares of Series C Preferred Stock to be Converted: _____

Number of shares of Common Stock to be Issued: _____

Address for delivery of physical certificates:

or

for DWAC Delivery:

DWAC Instructions:

Broker no:

Account no:

HOLDER

By: _____

Name: _____

Title: _____

Date: _____



One Financial Center
Boston, MA 02111
617 542 6000
mintz.com

February 28, 2020

Spero Therapeutics, Inc.
675 Massachusetts Avenue, 14th Floor
Cambridge, Massachusetts 02139

Ladies and Gentlemen:

We have acted as counsel to Spero Therapeutics, Inc., a Delaware corporation (the “Company”), in connection with the offering by the Company of (i) up to 3,333,333 shares (the “Common Shares”) of common stock of the Company, par value \$0.001 per share (the “Common Stock”), and (ii) up to 3,333 shares (the “Preferred Shares” and, together with the Common Shares, the “Shares”) of Series C convertible preferred stock of the Company, par value \$0.001 per share, convertible into 3,333,333 shares of Common Stock (the “Conversion Shares”). The offering is being made pursuant to the Registration Statement on Form S-3 (File No. 333-228661) (the “Registration Statement”) filed with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933, as amended (the “Act”), the prospectus included in the Registration Statement (the “Base Prospectus”), and the related prospectus supplement filed with the Commission pursuant to Rule 424(b) promulgated under the Act (together with the Base Prospectus, the “Prospectus”) and pursuant to the non-transferable subscription rights granted by the Company to its stockholders to purchase Common Shares and/or Preferred Shares, as described in the Prospectus, and the right granted to certain affiliates of BVF Partners L.P. to purchase any Shares offered but not sold under the Prospectus (the “Oversubscription Right”).

In connection with our rendering of this opinion, we have examined and relied upon the Registration Statement, the Prospectus, and the Company’s amended and restated certificate of incorporation, amended and restated bylaws, and certificate of designation of preferences, rights and limitations of Series C convertible preferred stock (the “Certificate of Designation”), each as currently in effect; and the originals or copies certified to our satisfaction of such records, documents, certificates, memoranda, and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below.

In our examination, we have assumed the genuineness and authenticity of all signatures, the legal capacity of natural persons, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified or photostatic copies, the authenticity of the originals of such copies and the accuracy, completeness and authenticity of certificates of public officials.

Our opinion is limited to the General Corporation Law of the State of Delaware and we express no opinion with respect to the laws of any other jurisdiction. No opinion is expressed herein with respect to the qualification of the Shares under the securities or blue sky laws of any state or any foreign jurisdiction.

BOSTON LONDON LOS ANGELES NEW YORK SAN DIEGO SAN FRANCISCO WASHINGTON
MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

With respect to the Conversion Shares, we express no opinion to the extent that, notwithstanding the Company's current reservation of shares of Common Stock, future issuances of securities of the Company, including the Conversion Shares, and/or adjustments to outstanding securities of the Company, including the Preferred Shares, may cause the Preferred Shares to be convertible into more shares of Common Stock than the number that remain authorized but unissued.

On the basis of the foregoing, and in reliance thereon, and subject to the qualifications stated herein, we are of the opinion that (i) the Shares, when issued pursuant to the non-transferable subscription rights, including the Oversubscription Right, as described in the Prospectus, against payment therefor, will be validly issued, fully paid and non-assessable, and (ii) the Conversion Shares, when issued upon conversion of the Preferred Shares in accordance with the terms of the Certificate of Designation, will be validly issued, fully paid and non-assessable.

We consent to the filing of this opinion as an exhibit to a Current Report on Form 8-K for incorporation by reference into the Registration Statement in accordance with the requirements of Item 601(b)(5) of Regulation S-K promulgated under the Act and to the reference to the firm's name under the caption "Legal Matters" in the Prospectus. This opinion is expressed as of the date hereof, and we disclaim any responsibility to advise you of any changes in the facts stated or assumed herein or any changes in applicable law.

Very truly yours,

/s/ Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.