

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM S-8

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Novelos Therapeutics, Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

One Gateway Center, Suite 504, Newton, Massachusetts

(Address of principal executive offices)

04-3321804

(I.R.S. employer identification no.)

02458

(Zip code)

**Novelos Therapeutics, Inc.
2006 Stock Incentive Plan;
2000 Stock Option and Incentive Plan;
Nonqualified Option Issuances**
(Full title of the plan)

**Harry S. Palmin
President and Chief Executive Officer
Novelos Therapeutics, Inc.
One Gateway Center, Suite 504
Newton, Massachusetts 02458**
(Name and address of agent for service)

(617) 244-1616

(Telephone number, including area code, of agent for service)

WITH A COPY TO:

**Paul Bork, Esq.
Foley Hoag LLP
155 Seaport Boulevard
Boston, Massachusetts 02210
(617) 832-1000**

CALCULATION OF REGISTRATION FEE

Title of securities to be registered	Amount to be registered (1)	Proposed maximum offering price per share	Proposed maximum aggregate offering price	Amount of registration fee
common stock, par value \$0.00001 per share	6,710,000 shares (2)	\$ 0.63 (4)	\$ 4,227,300	
common stock, par value \$0.00001 per share	3,290,000 shares (3)	\$ 1.77 (5)	\$ 5,823,300	
common stock, par value \$0.00001 per share	56,047 shares (6)	\$ 3.09 (4)	\$ 173,185	
common stock, par value \$0.00001 per share	2,453,778 shares (7)	\$ 0.57 (4)	\$ 1,398,653	
Totals:	12,509,825 shares		\$11,622,438	\$ 828.68

- (1) Pursuant to Rule 416 promulgated under the Securities Act of 1933, as amended, the shares of common stock offered hereby also include an indeterminate number of additional shares of common stock as may from time to time become issuable by reason of stock splits, stock dividends, recapitalizations or other similar transactions.
 - (2) Represents shares of common stock issuable upon exercise of outstanding options issued under the 2006 stock incentive plan.
 - (3) Represents shares of common stock reserved and available for issuance pursuant to future awards under the 2006 stock incentive plan.
 - (4) Calculated pursuant to Rule 457(h) under the Securities Act of 1933 based on the weighted average exercise price per share of outstanding options.
 - (5) Estimated based on the closing price of our common stock as reported over-the-counter on the OTC Electronic Bulletin Board of the National Association of Securities Dealers, Inc. on January 15, 2010 pursuant to Rule 457(c) promulgated under the Securities Act of 1933.
 - (6) Represents shares of common stock issuable upon exercise of outstanding options issued under the 2000 stock option and incentive plan.
 - (7) Represents shares of common stock issuable upon exercise of other outstanding options.
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PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference

The following documents, which we filed with the Securities and Exchange Commission, are incorporated by reference in this registration statement:

- (a) Our annual report on Form 10-K for the fiscal year ended December 31, 2008 filed on March 31, 2009;
- (b) Our quarterly report on Form 10-Q for the fiscal quarter ended September 30, 2009 filed on November 16, 2009;
- (c) Our quarterly report on Form 10-Q for the fiscal quarter ended June 30, 2009 filed on August 6, 2009;
- (d) Our quarterly report on Form 10-Q for the fiscal quarter ended March 31, 2009 filed on May 15, 2009;
- (e) Our current report on Form 8-K filed on December 14, 2009;
- (f) Our current report on Form 8-K filed on November 4, 2009;
- (g) Our current report on Form 8-K filed on August 26, 2009; and
- (h) Our current report on Form 8-K filed on February 18, 2009.

In addition, all documents subsequently filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, prior to the filing of a post-effective amendment which indicates that all securities offered have been sold or which deregisters all securities then remaining unsold, are deemed to be incorporated by reference into, and to be a part of, this registration statement.

Item 4. Description of Securities

Under our amended and restated certificate of incorporation, our authorized capital stock consists of 225,000,000 shares of common stock, \$0.00001 par value per share and 7,000 shares of preferred stock, \$0.00001 par value per share.

Our amended and restated certificate of incorporation authorizes us to issue shares of our preferred stock from time to time in one or more series without stockholder approval. As of January 18, 2010, we had designated 272 shares of Series C cumulative convertible preferred stock, 204 of which were issued and outstanding as of that date and 735 shares of Series E preferred stock, 538.76581925 of which were issued and outstanding as of that date.

All outstanding shares of our common stock and preferred stock are duly authorized, validly issued, fully-paid and non-assessable.

Common Stock

Voting. Holders of our common stock are entitled to one vote per share held of record on all matters to be voted upon by our stockholders. Our common stock does not have cumulative voting rights. Persons who hold a majority of the outstanding common stock entitled to vote on the election of directors can elect all of the directors who are eligible for election.

Dividends. Subject to preferences that may be applicable to the holders of any outstanding shares of our preferred stock, the holders of our common stock are entitled to receive such lawful dividends as may be declared by our board of directors.

Liquidation and Dissolution. In the event of our liquidation, dissolution or winding up, and subject to the rights of the holders of any outstanding shares of our preferred stock, the holders of shares of our common stock will be entitled to receive pro rata all of our remaining assets available for distribution to our stockholders.

Other Rights and Restrictions. Our charter prohibits us from granting preemptive rights to any of our stockholders. All outstanding shares are fully paid and nonassessable.

Listing. Our common stock is traded on the over-the-counter bulletin board under the trading symbol "NVL.T.OB".

Series C Cumulative Convertible Preferred Stock

Stated Value: The Series C preferred stock has a stated value of \$12,000 per share.

Voting Rights: The Series C preferred stockholders do not have voting rights.

Dividends: The Series C preferred stock had an annual dividend rate of 8% until October 1, 2008 and since that date an annual dividend rate of 20%. The dividends are payable quarterly commencing on June 30, 2007. Such dividends shall only be paid after all outstanding dividends on the Series E preferred stock (with respect to the current fiscal year and all prior fiscal years) shall have been paid to the holders of the Series E preferred stock. Such dividends shall be paid in cash. As of January 18, 2010, there were aggregate accrued and unpaid dividends of approximately \$719,000 on the Series C preferred stock.

Conversion: Each share of Series C preferred stock is currently convertible at a price of \$0.65 per common share. The Series C preferred stock can be converted only to the extent that the Series C stockholder will not, as a result of the conversion, hold in excess of 4.99% of the total outstanding shares of our common stock, provided however that this limitation may be revoked by the stockholder upon 61 days' prior notice to us.

Antidilution : Upon the occurrence of a stock split, stock dividend, combination of our common stock into a smaller number of shares, issuance of any of our shares or other securities by reclassification of our common stock, merger or sale of substantially all of our assets, the conversion rate shall be adjusted so that the conversion rights of the Series C preferred stock stockholders will be equivalent to the conversion rights of the Series C preferred stock stockholders prior to such event.

Redemption: The Series C preferred stock is not redeemable at the option of the holder. However, we may redeem the Series C preferred stock by paying to the holder a sum of money equal to one hundred twenty percent (120%) of the stated value per share plus any accrued but unpaid dividends upon 30 days' (during which time the Series C preferred stock may be converted) prior written notice if a registration statement has been filed with and declared effective by the Securities and Exchange Commission covering the shares of our common stock issuable upon conversion of the Series C preferred stock.

Dissolution: In the event of any voluntary or involuntary liquidation, dissolution or winding up of our affairs, the Series C preferred stock will be treated as senior to our common stock. After all required payments are made to holders of Series E preferred stock, the Series C preferred stockholders will be entitled to receive first, \$12,000 per share and all accrued and unpaid dividends. If, upon any winding up of our affairs, our remaining assets available to pay the holders of Series C preferred stock are not sufficient to permit the payment in full, then all our assets will be distributed to the holders of our Series C preferred stock (and any remaining holders of Series E preferred stock as may be required) on a pro rata basis.

Series E Convertible Preferred Stock

Stated Value: The Series E preferred stock has a stated value of \$50,000 per share.

Voting and Board Rights: The Series E preferred stockholders are entitled to vote on all matters on which the holders of common stock are entitled to vote. The number of votes to which each holder of Series E preferred stock is entitled is equal to the number of shares of common stock that would be issued to such holder if the Series E Preferred Stock had been converted at the record date for the meeting of stockholders, subject to the limitations described under the subcaption "Conversion" below.

Pursuant to the securities purchase agreement dated March 26, 2008, the Xmark affiliated funds have the right to designate one member to our Board of Directors. This right shall last until such time as the Xmark affiliated funds no longer hold at least one-third of the preferred stock issued to them at closing. In addition, the Xmark affiliated funds and the Orbimed affiliated funds (together with the Xmark affiliated funds, the "Lead Investors") have the right to designate one observer to attend all meetings of our Board of Directors, committees thereof and access to all information made available to members of the Board. This right lasts until such time as the Lead Investors no longer hold at least one-third of the preferred stock issued to them. Pursuant to the securities purchase agreement dated August 25, 2009, Purdue has the right to either designate one member of our board of directors or designate an observer to attend all meetings of our Board of Directors, committees thereof and access to all information made available to members of the Board. This right lasts until the later of such time as Purdue or its assignees no longer hold at least one-half of the common stock and preferred stock issued to them.

Dividends: The Series E preferred stock has a dividend rate of 9% per annum, payable semi-annually. Such dividends may be paid in cash, in shares of Series E preferred stock or in registered shares of common stock. While any shares of Series E preferred stock remain outstanding, we are prohibited from paying dividends to common stockholders or any other class of preferred stock other than Series C preferred stock without the prior consent of the Series E holders. If consent is given, the holders of outstanding shares of Series E preferred stock are also entitled to participate in any dividends paid to common stockholders. As of January 18, 2010, there were aggregate accrued and unpaid dividends of approximately \$2,275,000 on the Series E preferred stock.

Conversion: Each share of Series E preferred stock is convertible at a price of \$0.65 per common share at any time after issuance. The Series E preferred stock can be converted only to the extent that the Series E stockholder will not, as a result of the conversion, beneficially hold in excess of 4.99% or 9.99%, as applicable, of the total outstanding shares of our common stock, provided however that this limitation may be revoked by the stockholder upon 61 days' prior notice to the Company. If there is an effective registration statement covering the shares of common stock underlying the outstanding shares of Series E preferred stock and the daily volume weighted average price ("VWAP"), as defined in the Series E Certificate of Designations, of our common stock exceeds \$2.00 for 20 consecutive trading days, then the outstanding Series E preferred stock will automatically convert, together with accrued dividends, into common stock at the conversion price then in effect.

Antidilution: Upon the occurrence of a stock split, stock dividend, combination of our common stock into a smaller number of shares, issuance of any of our shares or other securities by reclassification of our common stock, merger or sale of substantially all of our assets, the conversion rate shall be adjusted so that the conversion rights of the Series E preferred stock will be equivalent to the conversion rights of the Series E preferred stock stockholders prior to such event.

Liquidation: The Series E preferred stock ranks senior to all other outstanding series of preferred stock and common stock as to the payment of dividends and the distribution of assets upon voluntary or involuntary liquidation, dissolution or winding up of our affairs. The Series E preferred stockholders will be entitled to receive first, prior to any distribution of any assets or surplus funds of the Company to the holders of common stock or any other class of capital stock, an amount equal to \$50,000 per share and all accrued and unpaid dividends. They are then entitled to participate with the holders of the remaining classes of common stock in the distribution of remaining assets on a pro rata basis. If, upon any winding up of our affairs, our assets available to pay the holders of Series E preferred stock are not sufficient to permit the payment in full, or the amounts described above, then all our assets will be distributed to the holders of our Series E preferred stock on a pro rata basis.

If we sell, lease or otherwise transfer substantially all of our assets, consummate a business combination in which we are not the surviving corporation or, if we are the surviving corporation, if the holders of a majority of our common stock immediately before the transaction do not hold a majority of our common stock immediately after the transaction, in one or a series of events, change the majority of the members of our board of directors, or if any person or entity (other than the holders of Series E preferred stock) acquires more than 50% of our outstanding stock, then the holders of Series E preferred stock are entitled to receive the same liquidation preference as described above, except that after receiving \$50,000 per preferred share and any accrued but unpaid dividends, they are not entitled to participate with other classes or common stock in a distribution of the remaining assets.

Other restrictions: For as long as any shares of Series E preferred stock remain outstanding, without the prior consent of the requisite holders of Series E preferred stock (generally the Xmark affiliated funds, the Orbimed affiliated funds and Purdue), the Company is prohibited from (i) paying dividends to common stockholders; (ii) amending the Company's certificate of incorporation or by-laws; (iii) issuing any equity security or any security convertible into or exercisable for any equity security at a price of \$0.65 or less or with rights senior to the Series E preferred stock (except for certain exempted issuances); (iv) increasing the number of shares of Series E preferred stock or issuing any additional shares of Series E preferred stock other than the shares designated in the Series E Certificate of Designations; (v) selling, licensing or otherwise granting any rights with respect to all or substantially all of the Company's assets (and in the case of licensing, any material intellectual property) or the Company's business and shall not enter into a merger or consolidation with another company unless Novelos is the surviving corporation, the Series E preferred stock remains outstanding, there are no changes to the rights and preferences of the Series E preferred stock and there is not created any new class of capital stock senior to the Series E preferred stock; (vi) redeeming or repurchasing any capital stock other than Series E preferred stock; (vii) incurring any new debt for borrowed money in excess of \$500,000 and (viii) changing the number of the Company's directors.

Anti-Takeover Effect of Certain Charter and By-Law Provisions

Provisions of our charter and our by-laws could make it more difficult to acquire us by means of a merger, tender offer, proxy contest, open market purchases, removal of incumbent directors and otherwise. These provisions, which are summarized below, are expected to discourage types of coercive takeover practices and inadequate takeover bids and to encourage persons seeking to acquire control of us to first negotiate with us. We believe that the benefits of increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging takeover or acquisition proposals because negotiation of these proposals could result in an improvement of their terms.

Authorized but Unissued Stock. We have shares of common stock and preferred stock available for future issuance, in some cases, without stockholder approval. We may issue these additional shares for a variety of corporate purposes, including public offerings to raise additional capital, corporate acquisitions, stock dividends on our capital stock or equity compensation plans.

The existence of unissued and unreserved common stock and preferred stock may enable our board of directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us, thereby protecting the continuity of our management. In addition, if we issue preferred stock, the issuance could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation.

Vacancies on the Board of Directors. Our by-laws provide that any vacancy on the board of directors, however occurring, including a vacancy resulting from an enlargement of the board, may be filled only by the vote of a majority of the directors then in office. This limitation on the filling of vacancies could have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from acquiring, control of us.

Notice Periods for Stockholder Meetings. Our by-laws provide that for business to be brought by a stockholder before an annual meeting of stockholders, the stockholder must give written notice to the corporation not less than 90 nor more than 120 days prior to the one year anniversary of the date of the annual meeting of stockholders of the previous year; provided, however, that in the event that the annual meeting of stockholders is called for a date that is not within 30 days before or after such anniversary date, notice by the stockholder must be received not later than the close of business on the tenth day following the day on which the corporation's notice of the date of the meeting is first given or made to the stockholders or disclosed to the general public, whichever occurs first.

Special Meeting of Stockholders. Our by-laws provide that any action required or permitted to be taken by our stockholders at an annual meeting or special meeting of stockholders may only be taken if it is properly brought before the meeting.

Item 5. Interest of Named Experts and Counsel

The validity of the securities we are registering is being passed upon by Foley Hoag LLP, Boston, Massachusetts.

Item 6. Indemnification of Directors and Officers

Section 102(b)(7) of the Delaware General Corporation Law allows us to adopt a charter provision eliminating or limiting the personal liability of directors to us or our stockholders for breach of fiduciary duty as directors, but the provision may not eliminate or limit the liability of directors for (a) any breach of the director's duty of loyalty to us or our stockholders, (b) any acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (c) unlawful payments of dividends or unlawful stock repurchases or redemptions under Section 174 of the Delaware General Corporation Law or (d) any transaction from which the director derived an improper personal benefit. Article Seventh of our charter provides that none of our directors shall be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director, subject to the limitations imposed by Section 102(b)(7). Article Seventh also provides that no amendment to or repeal of Article Seventh shall apply to or have any effect on the liability or the alleged liability of any director with respect to any acts or omissions of such director occurring prior to such amendment or repeal. A principal effect of Article Seventh is to eliminate or limit the potential liability of our directors for monetary damages arising from breaches of their duty of care, unless the breach involves one of the four exceptions described in (a) through (d) above.

Section 145 of the Delaware General Corporation Law provides, in general, that a corporation incorporated under the laws of the State of Delaware, such as us, may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding (other than a derivative action by or in the right of the corporation) by reason of the fact that such person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe such person's conduct was unlawful. In the case of a derivative action, a Delaware corporation may indemnify any such person against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification will be made in respect of any claim, issue or matter as to which such person will have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery of the State of Delaware or any other court in which such action was brought determines such person is fairly and reasonably entitled to indemnity for such expenses.

Article Eighth of our amended and restated certificate of incorporation, as amended, and Section 5.1 of our by-laws provide that we will indemnify our directors, officers, employees and agents to the extent and in the manner permitted by the provisions of the Delaware General Corporation Law, as amended from time to time, subject to any permissible expansion or limitation of such indemnification, as may be set forth in any shareholders' or directors' resolution or by contract.

The effect of these provisions would be to permit indemnification by us for, among other liabilities, liabilities arising out of the Securities Act of 1933.

Item 7. Exemption from Registration Claimed

Not Applicable.

Item 8. Exhibits.

Exhibit Number	Description
3.1	Amended and Restated Certificate of Incorporation filed as Exhibit A to the Certificate of Merger merging Nove Acquisition, Inc. with and into Novelos Therapeutics, Inc. dated May 26, 2005 (filed as exhibit 3.1 to our quarterly report on 10-QSB filed on August 10, 2007).
3.2	Certificate of Merger merging Common Horizons, Inc. with and into Novelos Therapeutics, Inc. dated June 13, 2005 (filed as exhibit 3.2 to our quarterly report on 10-QSB filed on August 10, 2007).
3.3	Certificate of Correction dated March 3, 2006 (filed as exhibit 3.3 to our quarterly report on 10-QSB filed on August 10, 2007).
3.4	Certificate of Amendment to Amended and Restated Certificate of Incorporation dated July 16, 2007 (filed as exhibit 3.4 to our quarterly report on 10-QSB filed on August 10, 2007).
3.5	Certificate of Designations of Series C cumulative convertible preferred stock (filed as exhibit 3.5 to our quarterly report on 10-QSB filed on August 10, 2007).
3.6	Certificate of Designations of Series E convertible preferred stock (filed as exhibit 4.1 to our current report on Form 8-K filed on February 18, 2009).
3.7	Certificate of Amendment to Amended and Restated Certificate of Incorporation dated November 3, 2009 (filed as exhibit 3.7 to our quarterly report on Form 10-Q filed on November 16, 2009).
3.8	Amended and Restated By-Laws (filed as exhibit 3.1 to our current report on Form 8-K filed on August 26, 2009).
5.1	Opinion of Foley Hoag LLP.
10.1	Novelos Therapeutics, Inc. 2006 Stock Incentive Plan, as amended (filed as exhibit 10.16 to Amendment no. 1 to our registration statement on Form S-1 filed on December 7, 2009).
10.2	Form of Incentive Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan (filed as exhibit 10.1 to our current report on Form 8-K filed on December 15, 2006).
10.3	Form of Non-Statutory Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan (filed as exhibit 10.2 to our current report on Form 8-K filed on December 15, 2006).
10.4	Form of Non-Statutory Director Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan (filed as exhibit 10.3 to our current report on Form 8-K filed on December 15, 2006).
10.5	2000 Stock Option and Incentive Plan (filed as exhibit 10.2 to our registration statement on Form SB-2 filed on November 16, 2005).
10.6	Form of 2004 Non-Statutory Stock Option (filed as exhibit 10.3 to our registration statement on Form SB-2 filed on November 16, 2005).
10.7	Form of Non-Statutory Stock Option used for February-May 2005 (filed as exhibit 10.4 to our registration statement on Form SB-2 filed on November 16, 2005).
10.8	Form of 2004 Non-Statutory Stock Option used for June 2005-December 2005 (filed as exhibit 10.5 to our registration statement on Form SB-2 filed on November 16, 2005).
23.1	Consent of Stowe & Degon LLC.
23.2	Consent of Foley Hoag LLP (included in Exhibit 5.1).
24.1	Power of attorney (contained on the signature page of this registration statement).

Item 9. Undertakings

The undersigned registrant hereby undertakes to:

(a) (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement; provided, however, that Paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Newton, Massachusetts, as of January 19, 2010.

NOVELOS THERAPEUTICS, Inc.

By: /s/ Harry S. Palmin
Harry S. Palmin
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS that each individual whose signature appears below hereby constitutes and appoints Harry Palmin and Joanne Protano, and each of them, his or her true and lawful attorneys-in-fact and agents with full power of substitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and to file the same, with all exhibits thereto, and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing which they, or any of them, may deem necessary or advisable to be done in connection with this registration statement, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or any substitute or substitutes for him or her, or any or all of them, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the indicated capacities as of January 19, 2010.

<u>Signature</u>	<u>Title</u>
<u>/s/ Harry Palmin</u> Harry Palmin	President, Chief Executive Officer and Director <i>(Principal Executive Officer)</i>
<u>/s/ Joanne Protano</u> Joanne Protano	Chief Financial Officer <i>(Principal Financial and Accounting Officer)</i>
<u>/s/ Stephen Hill</u> Stephen Hill	Director
<u>/s/ Michael Doyle</u> Michael Doyle	Director
<u>/s/ Sim Fass</u> Sim Fass	Director
<u>James Manuso</u>	Director
<u>/s/ David McWilliams</u> David McWilliams	Director
<u>/s/ Howard Schneider</u> Howard Schneider	Director

EXHIBIT INDEX

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5.1	Opinion of Foley Hoag LLP.
10.1	Novelos Therapeutics, Inc. 2006 Stock Incentive Plan, as amended (filed as exhibit 10.16 to Amendment no. 1 to our registration statement on Form S-1 filed on December 7, 2009).
10.2	Form of Incentive Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan (filed as exhibit 10.1 to our current report on Form 8-K filed on December 15, 2006).
10.3	Form of Non-Statutory Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan (filed as exhibit 10.2 to our current report on Form 8-K filed on December 15, 2006).
10.4	Form of Non-Statutory Director Stock Option under Novelos Therapeutics, Inc.'s 2006 Stock Incentive Plan (filed as exhibit 10.3 to our current report on Form 8-K filed on December 15, 2006).
10.5	2000 Stock Option and Incentive Plan (filed as exhibit 10.2 to our registration statement on Form SB-2 filed on November 16, 2005).
10.6	Form of 2004 Non-Statutory Stock Option (filed as exhibit 10.3 to our registration statement on Form SB-2 filed on November 16, 2005).
10.7	Form of Non-Statutory Stock Option used for February-May 2005 (filed as exhibit 10.4 to our registration statement on Form SB-2 filed on November 16, 2005).
10.8	Form of 2004 Non-Statutory Stock Option used for June 2005-December 2005 (filed as exhibit 10.5 to our registration statement on Form SB-2 filed on November 16, 2005).
23.1	Consent of Stowe & Degon LLC.
23.2	Consent of Foley Hoag LLP (included in Exhibit 5.1).
24.1	Power of attorney (contained on the signature page of this registration statement).

January 19, 2010

Novelos Therapeutics, Inc.
One Gateway Center, Suite 504
Newton, Massachusetts 02458

Re: S-8 Registration Statement

Ladies and Gentlemen:

We have acted as counsel for Novelos Therapeutics, Inc., a Delaware corporation (the "Company"), in connection with the preparation and filing with the Securities and Exchange Commission under the Securities Act of 1933, as amended (the "Act"), of a Registration Statement on Form S-8 (the "Registration Statement") relating to the offering of up to 12,509,825 shares (the "Shares") of the Company's Common Stock, par value \$.00001 per share, issuable pursuant to the Company's 2000 Stock Option and Incentive Plan, as amended and the Company's 2006 Stock Incentive Plan, as amended (collectively, the "Plans") and under options previously granted and currently outstanding (the "Non-Plan Options").

In arriving at the opinions expressed below, we have examined and relied on the following documents: (a) the Registration Statement; (b) the Plans and the Non-Plan Options; (c) the Certificate of Incorporation and Bylaws of the Company, each as amended to date; and (d) the records of meetings and consents of the Board of Directors and stockholders of the Company provided to us by the Company. In addition, we have examined and relied on the originals or copies certified or otherwise identified to our satisfaction of all such records, documents and instruments of the Company and such other persons, and we have made such investigations of law, as we have deemed appropriate as a basis for the opinions expressed below.

In rendering the opinion below, we assume that all Shares to be issued pursuant to the Plans and the Non-Plan Options will be issued in accordance with the terms of the Plans and the Non-Plan Options and that the purchase price of a Share will not be less than its par value.

Based upon the foregoing, we are of the opinion that:

1. The Company has the corporate power necessary for the issuance of the Shares under the Plans and the Non-Plan Options, as contemplated by the Registration Statement.
2. The Shares have been duly authorized by all necessary corporate action and, when issued against payment of the agreed consideration therefor in accordance with the Plans and the Non-Plan Options, will be validly issued, fully paid and non-assessable.

We express no opinion as to the laws of any state or jurisdiction other than the General Corporation Law of the State of Delaware (including applicable provisions of the Delaware Constitution and reported judicial decisions interpreting such Law and such Constitution) and the federal laws of the United States of America.

This opinion is to be used only in connection with the offer and sale of the Shares while the Registration Statement is in effect.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act and to the reference to our firm under the caption, "Interests of Named Experts and Counsel." In giving such consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act of 1933 or the rules and regulations of the Securities and Exchange Commission.

Very truly yours,

FOLEY HOAG LLP

By: /s/ Paul S. Bork
A Partner

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors
Novelos Therapeutics, Inc.

We consent to the incorporation by reference of our report dated March 17, 2009, relating to the financial statements of Novelos Therapeutics, Inc. as of December 31, 2008 and 2007 and for the years then ended in the Registration Statement on Form S-8 of Novelos Therapeutics, Inc., relating to the registration of 12,509,825 shares of common stock.

/s/ Stowe & Degon LLC

Westborough, Massachusetts
January 19, 2010
