

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

Post-Effective Amendment No. 2 to
FORM S-1
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)

2834
(Primary Standard Industrial
Classification Code Number)

04-3321804
(I.R.S. employer
identification number)

**One Gateway Center
Suite 504
Newton, Massachusetts 02458
(617) 244-1616**
(Address and telephone number of principal executive offices)

Harry S. Palmin
President and Chief Executive Officer
Novelos Therapeutics, Inc.
One Gateway Center, Suite 504
Newton, Massachusetts 02458
(617) 244-1616
(Name, address and telephone number of agent for service)

Copy to:
Paul Bork, Esq.
Foley Hoag LLP
155 Seaport Boulevard
Boston, Massachusetts 02110
(617) 832-1000

Approximate date of commencement of proposed sale to the public: Not applicable.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 ("Securities Act"), check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

(Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a smaller reporting company)

DEREGISTRATION OF UNSOLD SECURITIES

On September 15, 2009, Novelos Therapeutics, Inc. (the "Company") filed a Registration Statement on Form S-1 (File No. 333-161922) with the Securities and Exchange Commission (the "Commission"), which was declared effective on February 12, 2010 and subsequently amended by Post-Effective Amendment No. 1 filed on April 14, 2010 (the "Registration Statement"). The Registration Statement initially registered the resale, from time to time, of 19,000,000 shares (the "Shares") of the Company's common stock, par value \$0.00001 per share. The Shares were registered to permit resales of such Shares by the selling stockholders, as named in the Registration Statement, who acquired preferred stock convertible into Shares in connection with the Company's private placements of the Company's Series E preferred stock in 2009.

In accordance with the undertaking of the Company contained in the Registration Statement pursuant to Item 512 of Regulation S-K, the Company is filing this Post-Effective Amendment No. 2 to the Registration Statement to deregister the Shares that were previously registered under the Registration Statement, 15,601,703 of which remain, to the best of the Registrant's knowledge based on the information available to it, unsold as of the date hereof. The Company is seeking to deregister these Shares because its obligations to keep the Registration Statement effective pursuant to the terms of its registration rights agreements with the selling stockholders have terminated with respect to all the Shares. The Registration Statement is hereby amended to effect the deregistration of these 15,601,703 Shares.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this post-effective amendment to the registration statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Newton, Commonwealth of Massachusetts, on February 4, 2011.

NOVELOS THERAPEUTICS, INC.

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

February 4, 2011

In accordance with the requirements of the Securities Act of 1933, this post-effective amendment to the registration statement was signed by the following persons in the capacities and on the dates stated:

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Harry S. Palmin</u> Harry S. Palmin	Chief Executive Officer and Director (<i>principal executive officer</i>)	February 4, 2011
<u>/s/ Joanne M. Protano</u> Joanne M. Protano	Chief Financial Officer (<i>principal financial officer and principal accounting officer</i>)	February 4, 2011
<u>/s/ *</u> Stephen A. Hill	Chairman of the Board of Directors	February 4, 2011
<u>/s/ *</u> Michael J. Doyle	Director	February 4, 2011
<u>/s/ *</u> Sim Fass	Director	February 4, 2011
<u>/s/ *</u> James S. Manuso	Director	February 4, 2011
<u>/s/ *</u> David B. McWilliams	Director	February 4, 2011
<u>/s/ *</u> Howard M. Schneider	Director	February 4, 2011

* /s/ Harry S. Palmin as attorney-in-fact.
