

**Prospectus Supplement No. 5
(To Prospectus dated April 28, 2008)**

NOVELOS THERAPEUTICS, INC.

12,000,000 shares of common stock

This prospectus supplement supplements the Prospectus dated April 28, 2008, relating to the resale of 12,000,000 shares of our common stock. This prospectus supplement should be read in conjunction with the Prospectus.

Collaboration Agreement

On February 11, 2009 Novelos Therapeutics, Inc. (“Novelos or we”) entered into a collaboration agreement (the “Collaboration Agreement”) with Mundipharma International Corporation Limited (“Mundipharma”) to develop and commercialize Licensed Products (as defined in the Collaboration Agreement), which includes Novelos’ lead compound, NOV-002, in Europe and Asia/Pacific (excluding China) (the “Territory”).

Under the Collaboration Agreement, Mundipharma received an exclusive license to develop, manufacture, market, sell or otherwise distribute the Licensed Products and improvements thereon in the Territory. Mundipharma will pay Novelos \$2.5 million upon the launch of NOV-002 in each country, up to a maximum of \$25 million. In addition, Mundipharma will make fixed sales-based payments up to an aggregate of \$60 million upon the achievement of certain annual sales levels payable once the annual net sales exceed the specified thresholds.

Mundipharma will also pay as royalties to Novelos, during the term of the Collaboration Agreement, a double-digit percentage on net sales of Licensed Products in countries within the Territory where, as of the effective date thereof, Novelos holds patents on the licensed technology based upon a four-tier royalty schedule. Royalties in countries in the Territory where Novelos does not hold patents as of the effective date will be paid at 50% of the royalty rates in countries where patents are held. The royalties will be calculated based on the incremental net sales in the respective royalty tiers and shall be due on net sales in each country in the Territory where patents are held until the last patent expires in the respective country. In countries in the Territory where Novelos does not hold patents as of the effective date of the Collaboration Agreement, royalties will be due until the earlier of 15 years from the date of Agreement or the introduction of a generic in the respective country resulting in a 20% drop in Mundipharma’s market share in such country.

The launch of Licensed Products, including initiation of regulatory and pricing approvals, and subsequent commercial efforts to market and sell Licensed Products in each country in the Territory will be determined by Mundipharma based on its assessment of the commercial viability of the Licensed Products, the regulatory environment and other factors. Novelos has no assurance that it will receive any amount of launch payments, fixed sales-based payments or royalties.

Under the Collaboration Agreement, Novelos is responsible for the cost and execution of development, regulatory submissions and commercialization of NOV-002 outside the Territory and Mundipharma is responsible for the cost and execution of certain development activities, all regulatory submissions and all commercialization within the Territory. In the unlikely event that Mundipharma is required to conduct an additional Phase 3 clinical trial in first-line advanced stage NSCLC in order to gain regulatory approval in Europe, Mundipharma will be entitled to recover the full cost of such trial by reducing milestone, fixed sales-based payments and royalty payments to Novelos by up to 50% of the payments owed until Mundipharma recovers the full costs of such trial. In order for Mundipharma or Novelos to access data or intellectual property related to Independent Trials (as defined in the Collaboration Agreement), they must pay the sponsoring party 50% of the cost of such trial.

For countries in which patents are held, the Collaboration Agreement expires on a country-by-country basis within the Territory on the earlier of (1) expiration of the last applicable Novelos patent within the country or (2) the determination that any patents within the country are invalid, obvious or otherwise unenforceable. For countries in which no patents are held, the Agreement expires 15 years from effective date or upon generic product competition in the country that results in a 20% drop in Mundipharma's market share. Novelos may terminate the Collaboration Agreement upon breach or default by Mundipharma. Mundipharma may terminate the Collaboration Agreement upon breach or default, filing of voluntary or involuntary bankruptcy by Novelos, the termination of certain agreements with companies associated with the originators of the licensed technology, or 30-day notice for no reason. If any regulatory approval within the Territory is suspended as a result of issues related to the safety of the Licensed Products, then Mundipharma's obligations under the Collaboration Agreement will be suspended until the regulatory approval is reinstated. If that reinstatement does not occur within twelve months of the suspension, then Mundipharma may terminate the Collaboration Agreement.

The foregoing summary descriptions of the Collaboration Agreement do not purport to be complete and are qualified in their entirety by reference to the Collaboration Agreement.

Securities Purchase Agreement

Concurrently with the execution of the Collaboration Agreement, we sold to Purdue Pharma, L.P. ("Purdue") an independent associated company of Mundipharma, 200 shares of a newly created series of our preferred stock, designated "Series E Convertible Preferred Stock", par value \$0.00001 per share (the "Series E Preferred Stock") and a warrant to purchase 9,230,769 shares of our common stock for an aggregate purchase price of \$10,000,000 (the "Series E Financing"). Pursuant to the related securities purchase agreement with Purdue (the "Purchase Agreement"), Purdue will 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 shall last until such time as Purdue no longer holds at least one-half of the Series E Preferred Stock issued to them at closing.

Series E Preferred Stock

The shares of Series E Preferred Stock have a stated value of \$50,000 per share and are convertible into shares of our common stock any time after issuance at the option of the holder at \$0.65 per share of common stock for an aggregate of 15,384,615 shares of common stock. If there is an effective registration statement covering the shares of common stock underlying the Series E Preferred Stock and the 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 into common stock at the conversion price then in effect. The conversion price will be subject to adjustment for stock dividends, stock splits or similar capital reorganizations.

The Series E Preferred Stock will have an annual dividend rate of 9%, payable semi-annually on June 30 and December 31. Such dividends may be paid in cash, in shares of Series E Preferred Stock or in registered shares of our common stock at our option, subject to certain conditions.

For as long as any shares of Series E Preferred Stock remain outstanding, we will be prohibited from (i) paying dividends to our common stockholders, (ii) amending our certificate of incorporation, (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, (v) selling or otherwise disposing of all or substantially all our assets or intellectual property or entering into a merger or consolidation with another company unless we are the surviving corporation, the Series E Preferred Stock remains outstanding and there are no changes to the rights and preferences of the Series E Preferred Stock, (vi) redeeming or repurchasing any capital stock other than the Series E Preferred Stock, (vii) incurring any new debt for borrowed money in excess of \$500,000 and (viii) changing the number of our directors.

Common Stock Purchase Warrant

The common stock purchase warrant is exercisable for an aggregate of 9,230,769 shares of our common stock at an exercise price of \$0.65. The warrant expires on December 31, 2015. The warrant exercise price and/or the common stock issuable pursuant to such warrant will be subject to adjustment for stock dividends, stock splits or similar capital reorganizations so that the rights of the warrant holders after such event will be equivalent to the rights of warrant holders prior to such event.

Registration Rights Agreement

Simultaneous with the execution of the Securities Purchase Agreement, we entered into a registration rights agreement (the “Registration Rights Agreement”) with Purdue and the holders (the “Series D Investors”) of our existing Series D convertible preferred stock (the “Series D Preferred Stock”). The Registration Rights Agreement requires us to file with the Securities and Exchange Commission no later than 5 business days following the six-month anniversary of the execution of the Securities Purchase Agreement, a registration statement covering the resale of (i) a number of shares of common stock equal to 100% of the shares issuable upon conversion of the Series E Preferred Stock (excluding 12,000,000 shares of common stock issuable upon conversion of the Series E Preferred Stock issued in exchange for shares of outstanding Series D Preferred Stock as described below that were included on a prior registration statement), (ii) 9,230,769 shares of common stock issuable upon exercise of the warrants issued to Purdue and (iii) 11,865,381 shares of common stock issuable upon exercise of warrants held by the Series D Investors. We will be required to use our best efforts to have the registration statement declared effective and keep the registration statement continuously effective under the Securities Act until the earlier of the date when all the registrable securities covered by the registration statement have been sold or the second anniversary of the closing. In the event we fail to file the registration statement within the timeframe specified by the Registration Rights Agreement, we will be required to pay to Purdue and the Series D Investors liquidated damages equal to 1.5% per month (pro-rated on a daily basis for any period of less than a full month) of the aggregate purchase price of the Series E Preferred Stock and warrants until we file the delinquent registration statement. We will be allowed to suspend the use of the registration statement for not more than 15 consecutive days or for a total of not more than 30 days in any 12 month period. The Registration Rights Agreement replaces a prior agreement dated April 11, 2008 between Novelos and the Series D Investors.

Agreement to Exchange and Consent and Amendments to Prior Agreements with Series D Investors

We also entered into a Consent and Agreement to Exchange (the “Exchange Agreement”) with the Series D Investors. Pursuant to the Exchange Agreement, the Series D Investors exchanged all 413.5 outstanding shares of Series D Preferred Stock and accumulated but unpaid dividends thereon for 445.442875 shares of Series E Preferred Stock. The rights and preferences of the Series E Preferred Stock are substantially the same as the Series D Preferred Stock. In addition, the Series D Investors waived liquidated damages that had accrued through date of the Exchange Agreement as a result of our failure to file a registration statement covering the shares of common stock underlying the Series D Preferred Stock and warrants not covered by an existing registration statement. In connection with the execution of the Exchange Agreement, the warrants held by the Series D Investors were amended to extend the expiration of the warrants to December 31, 2015 and to remove the forced exercise provision. Also, we entered into an amendment to the registration rights agreement dated May 2, 2007 with the Series D Investors to revise the definition of registrable securities under the agreement refer to Series E Preferred Stock.

As a result of the exchange described above, the common stock being offered pursuant to this prospectus, previously issuable upon conversion of the Series D preferred stock, is now issuable upon conversion of the Series E preferred stock. Any references to Series D preferred stock in the prospectus, to the extent necessary, shall be deemed to be references to Series E preferred stock.

Advisor Fees

Ferghana Partners, Inc. received a cash fee equal to seven percent (7%) of the gross proceeds from the sale of Series E Preferred Stock and Common Stock Purchase Warrants to Purdue. Ferghana will also receive cash fees equal to six percent (6%) of all payments to Novelos by Mundipharma under the Collaboration Agreement other than royalties on net sales.

Selling Stockholders Table

The following Selling Stockholders Table, which reflects the effect of the exchange of shares of Series D Preferred Stock for shares of Series E Preferred Stock described above, supersedes the Selling Stockholders Table appearing on page 41 of the Prospectus. The information on the table below is based on information supplied to us by the selling stockholders in connection with the preparation of the Prospectus, as adjusted to reflect the effect of the exchange. The beneficial ownership after the offering has been calculated based on the shares of common stock outstanding at the date of the exchange. Other than as described above, we have not updated information regarding share holdings of the selling stockholders.

Selling Stockholders

Name of Beneficial Owner	Beneficial Ownership Prior to Offering			Shares Offered	Beneficial Ownership After Offering		
	Outstanding	Right to Acquire	Total		Outstanding	Right to Acquire	Percent
Xmark Opportunity Fund, Ltd.	0	6,110,253	6,110,253	1,600,000	0	4,510,253	9.3
Xmark Opportunity Fund, L.P.	0	3,055,126	3,055,126	800,000	0	2,255,126	4.9
Xmark JV Investment Partners, LLC	0	3,055,126	3,055,126	800,000	0	2,255,126	4.9
Caduceus Capital Master Fund Limited (1)	157,300	5,746,272	5,903,572	1,600,000	157,300	4,146,272	8.9
Caduceus Capital II, L.P. (1)	104,900	4,402,375	4,507,275	1,040,000	104,900	3,362,375	7.3
UBS Eucalyptus Fund, L.L.C. (1)	94,400	2,946,452	3,040,852	1,040,000	94,400	1,906,452	4.4
PW Eucalyptus Fund, Ltd. (1)	11,500	339,974	351,474	120,000	11,500	219,974	*
Knoll Special Opportunities Fund II Master Fund, Ltd. (1)	316,000	5,503,619	5,819,619	1,600,000	316,000	3,903,619	8.8
Europa International, Inc. (1)	1,409,300	6,959,541	8,368,841	1,600,000	1,409,300	5,359,541	13.7
Hunt BioVentures, L.P.	0	6,798,206	6,798,206	1,800,000	0	4,998,206	10.2

* Less than 1%

(1) Shares in the “Outstanding” column consist of shares purchased in market transactions.

**Investing in our common stock involves a high degree of risk.
See Risk Factors beginning on page 6 of the Prospectus.**

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed on the adequacy or accuracy of this prospectus supplement. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is February 20, 2009
