

**Prospectus Supplement No. 4
(To Prospectus dated June 7, 2012)**

NOVELOS THERAPEUTICS, INC.

**5,420,800 Units Consisting of
5,420,800 Shares of Common Stock and
Class A Warrants to Purchase 2,710,400 Shares of Common Stock
Class B Warrants to Purchase 5,420,800 Shares of Common Stock**

This prospectus supplement supplements the Prospectus dated June 7, 2012, relating to the sale of 5,420,800 units, consisting of 5,420,800 shares of our common stock, Class A Warrants to purchase up to 2,710,400 shares of our common stock and Class B Warrants to purchase up to 5,420,800 shares of our common stock. This prospectus supplement should be read in conjunction with the Prospectus.

Results of Special Meeting of Stockholders

On October 25, 2012, we held a special meeting in lieu of annual meeting of stockholders (the "Meeting"). At the Meeting, our stockholders voted to reelect our incumbent Class I directors, Thomas Rockwell Mackie, James S. Manuso and John E. Niederhuber, for a three-year term. Our stockholders also approved an amendment to our 2006 Stock Incentive Plan to increase the number of shares of our common stock authorized for issuance thereunder to 10,000,000 from 7,000,000. We filed with the Securities and Exchange Commission the Novelos Therapeutics, Inc. 2006 Stock Incentive Plan, as amended on Form 8-K on October 26, 2012.

**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 October 26, 2012
