

**Prospectus Supplement No. 2
(To Prospectus dated July 26, 2012)**

**NOVELOS THERAPEUTICS, INC.
4,000,000 shares of common stock**

This prospectus supplement supplements the Prospectus dated July 26, 2012, relating to the resale, from time to time, of up to 4,000,000 shares of our common stock by the stockholders referred to throughout the Prospectus as "selling stockholders." This prospectus supplement should be read in conjunction with the Prospectus.

Amendment to Class B Warrants to Purchase 5,255,000 Shares of Common Stock

On September 10, 2012, we amended Class B Warrants to purchase 5,255,000 shares of common stock to extend the expiration date for the exercise of such warrants for a period of thirty days; from September 11, 2012 to October 11, 2012. We filed with the Securities and Exchange Commission the form of the Amendment to the Class B Warrants on Form 8-K on September 12, 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 September 10, 2012
