

PROSPECTUS SUPPLEMENT
(To Prospectus dated November 16, 2005)
10,000,000 Shares

STEMCELLS™

Common Stock

This prospectus supplement relates to the issuance and sale of up to 10,000,000 shares of our common stock from time to time through our sales agent, Cantor Fitzgerald & Co. These sales, if any, will be made pursuant to the terms of a sales agreement between us and the sales agent.

Our common stock trades on the NASDAQ Global Market under the symbol "STEM." Sales of shares of our common stock under this prospectus supplement, if any, may be made by any method permitted by law deemed to be an "at the market" offering as defined in Rule 415 under the Securities Act of 1933, as amended (the "Securities Act"), which includes sales made directly on the NASDAQ Global Market, the existing trading market for our common stock, or sales made to or through a market maker other than on an exchange. With our express written consent, the sales agent may also sell shares of our common stock in privately negotiated transactions. The sales agent will make all sales on a best efforts basis using commercially reasonable efforts consistent with its normal trading and sales practices, on terms mutually agreed upon by the sales agent and us. On December 28, 2006, the last reported sales price of our common stock on the NASDAQ was \$2.60 per share.

We will pay as compensation to the sales agent a fee of 5.0% of the gross proceeds of any sales of common stock sold pursuant to the sales agreement.

In connection with the sale of common stock on our behalf, the sales agent may be deemed to be an "underwriter" within the meaning of the Securities Act, and the compensation of the sales agent may be deemed to be underwriting commissions or discounts. We have agreed to indemnify the sales agent and its controlling persons against certain liabilities, including liabilities under the Securities Act. If we are unable to provide this indemnification, we will contribute to payments the placement agent and its controlling persons may be required to make in respect of those liabilities.

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

The date of this prospectus supplement is December 29, 2006.

