

PROSPECTUS SUPPLEMENT No. 5

(To Prospectus dated January 10, 2006, as supplemented by Prospectus Supplement No. 1 dated January 19, 2006, Prospectus Supplement No. 2 dated January 25, 2006, Prospectus Supplement No. 3 dated February 1, 2006 and Prospectus Supplement No. 4 dated March 17, 2006)



Making cancer more treatable™

\$82,000,000

**6.75% Convertible Senior Notes due October 31, 2010
and the common stock issuable upon conversion of the notes, for payments of interest and
make-whole payments on the notes and upon exercise of warrants**

This prospectus supplement supplements the prospectus dated January 10, 2006 of Cell Therapeutics, Inc., relating to the resale from time to time by selling securityholders of the notes and the common stock issuable upon conversion of the notes, for payments of interest and make-whole payments on the notes, and upon exercise of warrants issued to the initial purchaser as compensation for services provided in the offering of the notes. This prospectus supplement is not complete without, and may not be utilized or delivered except in connection with, the prospectus, including any amendments or supplements thereto.

Investing in the notes or 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 determined if this prospectus supplement is truthful or complete. Any representation to the contrary is a criminal offense.

This prospectus supplement is dated October 4, 2006

SELLING SECURITYHOLDERS

We originally issued the notes in a private placement in November 2005. The notes were resold by the initial purchasers to qualified institutional buyers under Rule 144A under the Securities Act in transactions exempt from registration under the Securities Act. We issued warrants to purchase common stock to the initial purchaser as compensation for services provided in the offering of the notes. We are registering all notes and the common stock issuable upon conversion of the notes, for payments of interest and make-whole payments on the notes and upon exercise of any warrants being offered by this prospectus supplement on behalf of the selling securityholders named in the table below. The selling securityholders may from time to time offer and sell any or all of the notes and the common stock issuable upon conversion of the notes, for payments of interest and make-whole payments on the notes and upon exercise of the warrants.

The following table and related footnotes contain information as of September 29, 2006 and supplement the table of selling securityholders and related footnotes appearing under the heading “Selling Securityholders” beginning on page 52 of the prospectus with respect to the selling securityholders and the principal amount of notes and the number of shares of common stock issuable upon conversion of the notes, for payments of interest and make-whole payments on the notes and upon exercise of any warrants beneficially owned by each selling securityholder that may be offered using the prospectus and this prospectus supplement. Where the name of a selling securityholder identified in the table below also appears in the table in the prospectus, the information set forth in the table below regarding that selling securityholder supersedes the information set forth in the prospectus. We prepared this table based on information supplied to us by the selling securityholders named in the table.

Any selling securityholder that is identified as a broker-dealer will be deemed to be an “underwriter” within the meaning of Section 2(11) of the Securities Act, unless such selling securityholder obtained the security as compensation for services. In addition, any affiliate of a broker-dealer will be deemed to be an “underwriter” within the meaning of Section 2(11) of the Securities Act, unless such selling securityholder purchased in the ordinary course of business and, at the time of its purchase of the security to be resold, did not have any agreements or understandings, directly or indirectly, with any person to distribute the security. As a result, any profits on the sale of securities by selling securityholders who are deemed to be “underwriters” and any discounts, commissions or concessions received by any such broker-dealers who are deemed to be “underwriters” will be deemed to be underwriting discounts and commissions under the Securities Act. Selling securityholders who are deemed to be “underwriters” will be subject to prospectus delivery requirements of the Securities Act and to certain statutory liabilities, including, but not limited to, those under Sections 11, 12 and 17 of the Securities Act and Rule 10b-5 under the Exchange Act.

Name	Principal Amount at Maturity of Notes Beneficially Owned That May be Sold	Percentage of Notes Outstanding	Number of Shares of Common Stock That May be Sold(1)(2)	Total Shares Beneficially Owned Prior to this Offering	Shares to be Beneficially Owned After Completion of this Offering(1)(2)	Percentage of Common Stock Outstanding After Completion of this Offering(3)
Loeb Partners Corporation (4)	\$ 0(5)	—	266,259	266,259	—	—

- (1) Includes shares of common stock into which the notes are convertible. Assumes conversion of all of the holder’s notes at a conversion price of approximately \$2.63 per share of common stock. However, this conversion price will be subject to adjustment as described under “Description of Notes — Conversion Rights.” As a result, the amount of common stock issuable upon conversion of the notes may increase or decrease in the future.
- (2) Does not include the shares of common stock issuable for payments of interest and make-whole payments on the notes. We estimate that the number of shares that would be issued if we elect to make all the payments of interest and the make-whole payment on all the notes to be 12,872,093 shares. As provided in the indenture governing the notes, any shares of common stock to be issued in payment of interest and make-whole payments will be valued at 95% of the volume weighted average price for the five consecutive trading days ending on the trade day immediately preceding any interest payment or make-whole interest payment date. For the purposes of estimating the number of shares that would be issued if we elect to make the payments of interest and the make-whole payment on the notes in common stock, we have assumed a per share value of

\$2.15, which is equal to 95% of the last reported sale price of our common stock as reported on the Nasdaq National Market on December 20, 2005. However, the number of shares of common stock that may ultimately be issued if we elect to make the payments of interest and the make-whole payment on the notes in common stock will vary depending on the volume-weighted average price of our common stock for the five consecutive trading days ending on the trading day immediately preceding any interest payment or make-whole interest payment date, as provided in the indenture governing the notes.

- (3) Calculated based on Rule 13d-3(d)(1)(i) of the Exchange Act using 73,421,721 shares of common stock outstanding as of December 31, 2005. In calculating this amount, shares owned by a holder prior to this offering are included with the number of shares of common stock issuable upon conversion of that holder's notes. In addition, we treated as outstanding the number of shares of common stock issuable upon conversion of all of that particular holder's notes. However, we did not assume the conversion of any other holder's notes.
- (4) Thomas Kempner may be considered to have voting or investment control over these securities. Mr. Kempner disclaims beneficial ownership of these securities except to the extent of his pecuniary interest therein.
- (5) Loeb Partners Corporation previously converted the notes held by it into 266,259 shares of common stock.

The selling securityholders listed in the above table may have sold or transferred, in transactions exempt from the registration requirements of the Securities Act, some or all of their notes since the date on which the information in the above table is presented. Information about the selling securityholders may change from over time. Any changed information provided to us will be set forth in prospectus supplements.

Because the selling securityholders may offer all or some of their notes, common stock issuable upon conversion of their notes, for payments of interest and make-whole payments on their notes and upon exercise of any warrants, we cannot estimate the amount of the notes or common stock that will be held by the selling securityholders upon the termination of any particular offering. For information on the procedures for sales by selling securityholders, see the section entitled "Plan of Distribution" beginning on page 54 of the prospectus.