

PLURISTEM THERAPEUTICS INC

Form 424B5

September 24, 2008

Filed Pursuant to Rule 424(b)(5)

Registration No. 333-151761

PROSPECTUS SUPPLEMENT NO. 2

(to prospectus dated July 1, 2008, as previously supplemented by Prospectus Supplement No. 1 filed on August 6, 2008)

900,000 shares of common stock.

Warrants to purchase 675,000 shares of common stock.

Price per share: \$1.15

Exercise price of warrants: \$1.90 per share of common stock.

Pluristem Therapeutics Inc. is offering for sale 900,000 shares of its common stock and warrants to purchase up to 675,000 shares of common stock pursuant to this prospectus supplement and related prospectus attached hereto. We use the term, this Prospectus, to mean this prospectus supplement and the accompanying prospectus, including the information incorporated by reference herein. This Prospectus also covers the shares of common stock issuable upon exercise of the warrants. Warrants may be purchased only together with shares of common stock but may be subsequently transferred separately. A warrant to purchase 0.75 share of common stock will be issued together with each share purchased. The shares and the warrants are sometimes referred to as units.

The last reported sale price on the Nasdaq Capital Market of our common stock on September 23, 2008 was \$0.89 per share, and the closing bid price was \$0.82 per share.

Common stock trading symbols: Nasdaq Capital Market: PSTI. Frankfurt Stock Exchange: PJT.

This investment involves a high degree of risk. See Risk Factors beginning on page S-4, as well as the section called Risk Factors beginning on page 13 of our Annual Report on Form 10-KSB for our 2007 fiscal year filed with the Securities and Exchange Commission and incorporated by reference into the accompanying 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 or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	Per Share	Per Warrant Exercise Price	Total
Public offering price for shares	\$ 1.15	-	\$ 1,035,000
Finder fees	6.0%	\$ 1.50	\$ 62,100
Public offering price (exercise price) for warrant exercise shares	-	\$ 1.90	\$ 1,282,500
Total proceeds, before expenses, to Pluristem Therapeutics Inc. from both shares and warrant exercise shares			\$ 2,255,400

Delivery of the units will be made on or about September 24, 2008.

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The date of this prospectus supplement is September 24, 2008.

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PROSPECTUS

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You should rely only on the information contained in or incorporated by reference into this prospectus supplement and the accompanying prospectus. We have not authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. The information in this prospectus supplement and the accompanying prospectus is accurate only as of the date it is presented. Our business, financial condition, results of operations and prospects may have changed since these dates.

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus dated July 1, 2008 (as supplemented and amended to date) are part of a shelf registration statement on Form S-3 filed with the Securities and Exchange Commission, and declared effective by the Securities and Exchange Commission on July 1, 2008. By using a shelf registration statement, we may sell shares of common stock and warrants to purchase shares of common stock as described in the accompanying prospectus from time to time in one or more offerings up to a total of \$15,000,000.

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These documents contain important information you should consider when making your investment decision. The accompanying prospectus provides you with a general description of the securities we may offer. This prospectus supplement contains information about the securities offered by this prospectus supplement. This prospectus supplement may add, update or change information in the accompanying prospectus. You should rely only on the information contained in this prospectus supplement, the accompanying prospectus or incorporated by reference into this prospectus supplement and the accompanying prospectus. We have not authorized anyone to provide you with any other information.

This prospectus supplement does not constitute an offer to sell, or a solicitation of an offer to buy, the securities offered hereby in any jurisdiction where, or to any person to whom, it is unlawful to make such offer or solicitation.

The information contained in this prospectus supplement is accurate only as of the date of this prospectus supplement and the accompanying prospectus, regardless of the time of delivery of this prospectus or of any sale of securities.

THE OFFERING

Common stock and warrants offered by us pursuant to this prospectus	900,000 shares, plus warrants to purchase 675,000 shares. This prospectus also covers the shares of common stock issuable upon exercise of the warrants offered hereby.
Common stock outstanding as of September 1, 2008	8,369,870 shares
Warrants outstanding as of September 1, 2008	Warrants to purchase 3,330,854 shares at a weighted average purchase price of 5.21
Common stock to be outstanding after this offering (pro forma as of September 1, 2008 excluding outstanding warrants to purchase 3,330,854 shares with a weighted average exercise price of 5.21)	9,269,870 shares, or 9,944,870 shares if the warrants sold in this offering are fully exercised (1)

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Common stock to be outstanding after this offering (pro forma as of September 1, 2008 including outstanding warrants to purchase 3,330,854 shares with a weighted average exercise price of 5.21)	12,600,724 shares, or 13,275,724 shares if the warrants sold in this offering are fully exercised (1)
Terms of warrants offered by us pursuant to this prospectus	Five year term , \$1.90 per share exercise price
Use of proceeds	We intend to use the net proceeds from the offering of units to complete our IND package to be submitted to the FDA and other research and development expenses and for general working capital and administrative expenses. See "Use of Proceeds" on page S-5.
Nasdaq Capital Market common stock symbol	PSTI
Risk factors	This investment involves a high degree of risk. See "Risk Factors" on page S-4 of this prospectus supplement and in our last Annual Report on Form 10-K filed with the SEC.

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(1) The number of shares of common stock to be outstanding after this offering excludes options outstanding on September 1, 2008, to purchase a total of 2,007,773 shares at a weighted-average exercise price of \$5.06 per share.

RISK FACTORS

Investment in our common stock and/or warrants involves a high degree of risk. Before making an investment decision, you should carefully consider the risks and uncertainties described below, together with all of the other information appearing in the accompanying prospectus or incorporated by reference therein, in light of your particular investment objectives and financial circumstances before you invest in our securities. In particular, we urge you to read the material under Risk Factors beginning on page 13 of our Annual Report on Form 10-KSB for our 2007 fiscal year, as filed with the Securities and Exchange Commission. If any of these risks actually occurs, our business, financial condition, results of operations and future growth prospects would be materially adversely affected. The trading price of our securities could decline due to any of these risks, and you may lose all or part of your investment. This prospectus, any prospectus supplement and the information incorporated by reference into this prospectus and any prospectus supplement also contain forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks so mentioned. Please note the following additional risk factor.

Conflict with Prior Financing Agreement

In our subscription agreement for our May 2007 equity financing (the Prior Financing Agreement), there is a provision that requires us for a period of four years (subject to acceleration under certain circumstances) not to sell any of our common stock for less than \$.0125 per share. The Prior Financing Agreement provides that any sale below that number must be preceded by a consent from each purchaser in the placement. Since that date, we have effected a one-for-200 reverse stock split.

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We have decided to proceed with this offering notwithstanding this provision for the following reasons:

The agreement does not contain any provisions for the adjustment of the specified minimum price in the event of stock splits and the like. If such agreement were to have contained such a provision, the floor price would be \$2.50, which is more than the offering price of this offering.

The majority of purchasers in the private placement have sold the stock purchased in the placement, and thus the number of purchasers whose consent is purportedly required has been substantially reduced. The number of shares outstanding as to which this provision currently applies according to the information supplied by our transfer agent is approximately 1.9 million shares.

An agreement that prevents our Board of Directors from issuing shares that are necessary to finance our business may be unenforceable.

Even if the agreement were considered enforceable and the share price number were to be adjusted for our reverse stock split, we believe that there would be no damage from this offering to the holders of our shares whose consent is purportedly required.

In the event that a court were to hold that the issuance of shares below \$2.50 per share would violate the Prior Financing Agreement, it is unclear what remedy the court might impose. If the court were to impose a remedy that would be the equivalent of an anti-dilution provision (which is not contained in the Prior Financing Agreement), any issuance of shares would be dilutive to our shareholders, including those who purchase shares in the current offering.

USE OF PROCEEDS

The proceeds we will receive from the offering of units will be \$1,035,000, before deducting the finder's fee and estimated offering expenses payable by us and excluding any proceeds from the potential exercise of warrants offered hereby.

We intend to use the net proceeds from the offering of units to fund the completion of our IND package to be submitted to the FDA, to fund the initiation of clinical trials of our products, as well as for related pre-clinical research and other research and development expenses and for general working capital and administrative expenses. The amounts and timing of the expenditures may vary significantly depending on

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numerous factors, such as the progress of our clinical trials and other research and development efforts, technological advances and the competitive environment for our products. Although we have no specific agreements, commitments or understandings with respect to any acquisition, we evaluate acquisition opportunities and engage in related discussions with other companies from time to time. Pending the use of the net proceeds, we intend to invest the net proceeds in short-term, interest-bearing, investment-grade securities.

Our management will have broad discretion in the application of the net proceeds and investors will be relying upon the judgment of our management regarding the application of these proceeds. We reserve the right to change the use of these proceeds. Depending upon the timing of receipt of any warrant exercise shares proceeds, we would use such proceeds for such corporate purposes as our management and Board of Directors may approve at the time. Such purposes may be different from today's purposes.

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DILUTION

If you purchase our common stock in this offering (either as a component of units or upon warrant exercise), your interest will be diluted to the extent of the difference between the public offering price per share and the net tangible book value per share of our common stock after this offering. We calculate net tangible book value per share by dividing the net tangible book value, tangible assets less total liabilities, by the number of outstanding shares of our common stock.

Our net tangible book value at March 31, 2008, was \$4.1 million, or \$0.60 per share, based on 6,750,698 shares of our common stock outstanding as of that date(1). After giving effect to the sale of 900,000 shares of common stock by us at a public offering price of \$1.15 per share, less the finder fees, our net tangible book value as of March 31, 2008 would have been approximately \$5.1 million, or \$0.66 per share. This represents an immediate increase in the net tangible book value of approximately \$0.06 per share to existing stockholders and an immediate dilution of \$0.49 per share to investors in this offering. The following table illustrates this per share dilution:

Public offering price per share	\$ 1.15
Net tangible book value per share as of March 31, 2008	\$ 0.60
Increase in net tangible book value per share after this offering	\$ 0.06
Net tangible book value per share after this offering	\$ 0.66
Dilution per share to new investors	\$ 0.49

The foregoing per share dilution does not give effect to the potential exercise of the warrants offered hereby.

Assuming the sale of all units offered hereby and also the exercise of all warrants within such units, the per share dilution would be as follows:

Our net tangible book value at March 31, 2008, was \$4.1 million or \$0.60 per share, based on 6,750,698 shares of our common stock outstanding as of that date(1). After giving effect to the sale of 1,575,000 shares of common stock (inclusive of 675,000 warrant exercise shares) by us at a blended public offering price of \$1.43 per share, less the finder fees, our net tangible book value as of March 31, 2008, would have been approximately \$6.4 million, or \$0.76 per share. This represents an immediate increase in the net tangible book value of approximately \$0.16 per share to existing stockholders and an immediate dilution of \$0.67 per share to investors in this offering. The following table illustrates this per share dilution:

Public offering price per share	\$ 1.43
Net tangible book value per share as of March 31, 2008	\$ 0.60
Increase in net tangible book value per share after this offering	\$ 0.16

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Net tangible book value per share after this offering	\$ 0.76
Dilution per share to new investors	\$ 0.67

(1) On August 5, 2008, we entered into securities purchase agreements with two investors pursuant to which the investors agreed to purchase 1,391,304 shares of our common stock and warrants to purchase 695,652 shares of common stock. The price per share of the common stock is \$1.15, and the exercise price of the warrants is \$1.90. The impact of this financing was not taken into consideration in the dilution information provided above.

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PLAN OF DISTRIBUTION

We have not entered into any placement agency agreement in connection with this offering.

We have entered into a securities purchase agreement directly with purchaser in connection with this offering. We currently anticipate that the closing of the sale of the units offered hereby will take place on or before September 24, 2008.

Upon closing, we will deliver to each purchaser delivering funds the number of shares purchased by such purchaser through the facilities of The Depository Trust Company and will deliver a physical warrant certificate to each Purchaser within three business days.

We have agreed to pay the finder an aggregate fee equal to 6.0% of the gross proceeds from the sale of units in this offering. We are not obligated to pay the finder any additional fee when and if the warrants are exercised. In addition, we agreed to grant compensation warrants to the finder to purchase a number of our common stock shares equal to 6.0% of the actual purchase price of \$1,035,000 divided by \$1.50. The compensation warrants will be substantially on the same terms as the warrants offered hereby, except that the compensation warrants will have an exercise price equal to \$1.50 per share and will expire five years from the date of this Prospectus Supplement.

The transfer agent for our common stock is American Stock Transfer & Trust Company, Brooklyn, New York.

Our common stock is traded on the Nasdaq Capital Market and the Frankfurt Stock Exchange under the symbols PSTI and PJT, respectively.

DESCRIPTION OF WARRANTS

The warrants to be issued in this offering represent the right to purchase up to 675,000 shares of common stock at an initial exercise price of \$1.90 per share. Each warrant may be exercised at any time and from time to time on or after September 24, 2008 and through and including September 23, 2013.

Exercise

Holders of the warrants may exercise their warrants to purchase shares of our common stock on or before the expiration date by delivering (i) an exercise notice, appropriately completed and duly signed, and (ii) if such holder is not utilizing the cashless exercise provisions, payment of the exercise price for the number of shares with respect to which the warrant is being exercised. Warrants may be exercised in whole or in part, but only for full shares of common stock, and any portion of a warrant not exercised prior to the expiration date shall be and become void and of no value.

In addition, the warrant holders are entitled to a cashless exercise option if, at any time of exercise, there is no effective registration statement registering, or no current prospectus available for, the issuance or resale of the shares of common stock underlying the warrants. This option entitles the warrant holder to elect to receive fewer shares of common stock without paying the cash exercise price. The number of shares to be issued would be determined by a formula based on the total number of shares with respect to which the warrant is being exercised, the volume weighted average of the prices per share of our common stock on the trading date immediately prior to the date of exercise and the

applicable exercise price of the warrants.

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The shares of common stock issuable on exercise of the warrants will be, when issued in accordance with the warrants, duly and validly authorized, issued and fully paid and non-assessable. We will authorize and reserve at least that number of shares of common stock equal to the number of shares of common stock issuable upon exercise of all outstanding warrants.

Delivery of Certificates

Upon the holder's exercise of a warrant, we will promptly, but in no event later than three trading days after the exercise date, issue and deliver, or cause to be issued and delivered, a certificate for the shares of common stock issuable upon exercise of the warrant. In addition, we will, if the holder provides the necessary information to us, issue and deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System or another established clearing corporation performing similar functions.

Certain Adjustments

The exercise price and the number of shares of common stock purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of the following events:

Stock Dividends and Splits

If, at any time while the warrant is outstanding, we (i) pay a stock dividend or otherwise make a distribution on any class of capital stock that is payable in shares of common stock, (ii) subdivide outstanding shares of common stock into a larger number of shares, or (iii) combine outstanding shares of common stock into a smaller number of shares, then in each such case the exercise price shall be multiplied by a fraction of which the numerator shall be the number of shares of common stock outstanding immediately before such event and of which the denominator shall be the number of shares of common stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate exercise price of the warrant shall remain unchanged.

Pro Rata Distributions

If, at any time while the warrant is outstanding, we distribute to all holders of our common stock for no consideration (i) evidences of our indebtedness (ii) any security (other than a distribution of common stock covered by the preceding paragraph), (iii) rights or warrants to subscribe for or purchase any security, or (iv) any other asset besides cash, then either upon any exercise of this Warrant that occurs after the record date fixed for determination of stockholders entitled to receive such distribution or, at the option of the Company, concurrently with such distribution, the Holder shall be entitled to receive, in addition to the Warrant Shares otherwise issuable upon such exercise (if applicable), the Distributed Property that such Holder would have been entitled to receive in respect of such number of Warrant Shares had the Holder been the record holder of such Warrant Shares immediately prior to such record date.

Fundamental Transaction

If, at any time while the warrant is outstanding, we (i) effect any merger with another person, in which our shareholders immediately prior to the transaction own immediately after the transaction less than a majority of the outstanding stock of the successor entity, or its parent if applicable, (ii) effect any sale of all or substantially all of our assets in one or a series of related transactions, (iii) complete any tender offer or exchange offer, which was approved or authorized by our Board of Directors, pursuant to which holders of at least a majority of our outstanding common stock tender or exchange their shares for other securities, cash or property, or (iv) effect any reclassification of the common stock or any compulsory share exchange pursuant to which the common stock is effectively converted into or exchanged for other securities, cash or property, each, a Fundamental Transaction. In the event of a Fundamental Transaction pursuant to which the securities, cash or property issuable with respect to the outstanding common stock consist solely of cash and/or securities traded on a national securities exchange or an established over-the-counter market (the Alternate Consideration), the warrant shall expire immediately prior to the closing of the Fundamental Transaction. We shall not effect any such Fundamental Transaction unless prior to or simultaneously with the consummation thereof, any successor, surviving entity or the corporation purchasing or otherwise acquiring such assets or other appropriate corporation or entity shall assume the obligation to deliver to the holders, such Alternate Consideration as, in accordance with the foregoing provisions, the holders shall be entitled to receive upon proper exercise of the warrant prior to such closing. In the event of a Fundamental Transaction in which the consideration does not entirely consist of the Alternate Consideration, we (or the successor entity) shall purchase the warrant from the holders by paying to the holders, within ten business days after the closing of such Fundamental Transaction cash in an amount equal to the Black Scholes Value (as reasonably determined by our Board of Directors or our financial advisor in the Fundamental Transaction) of the remaining unexercised portion of the warrant on the date of such Fundamental Transaction determined as of the day immediately following the public announcement of the applicable

Fundamental Transaction.

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Notice of Corporate Action

We will provide at least 10 trading days prior notice to holders of the warrants to provide such holders with a practical opportunity to exercise their warrants and hold common stock in order to participate in or vote on the following corporate events if we (i) declare a dividend or any other distribution of cash, securities or other property on the common stock, (ii) authorize, approve, enter into any agreement, contemplating or soliciting shareholders' approval for any Fundamental Transaction, or (iii) authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company.

Limitations on Exercise

The number of warrant shares that may be acquired by the holder upon any exercise of the warrant shall be limited to the extent necessary to insure that, following such exercise (or other issuance), the total number of shares of common stock then beneficially owned by such holder and its affiliates and any other persons whose beneficial ownership of common stock would be aggregated with the holder's for purposes of Section 13(d) of the Exchange Act, does not exceed 4.999% of the total number of issued and outstanding shares of common stock (including for such purpose the shares of common stock issuable upon such exercise), or Beneficial Ownership Limitation. The holder may waive this provision upon a 61 day written notice to the Company.

Notwithstanding anything to the contrary in the warrant, the number of warrant shares that may be acquired by the holder upon any exercise of the warrant shall be limited to the extent necessary to insure that, following such exercise (or other issuance), the total number of shares of common stock then beneficially owned by such holder and its affiliates and any other persons whose beneficial ownership of common stock would be aggregated with the holder's for purposes of Section 13(d) of the Exchange Act, does not exceed 9.999% of the total number of issued and outstanding shares of common stock (including for such purpose the shares of common stock issuable upon such exercise), or Beneficial Ownership Limitation. This restriction may not be waived.

Additional Provisions

The above summary of certain terms and provisions of the warrants is qualified in its entirety by reference to the detailed provisions of the warrants, the form of which will be filed as an exhibit to a current report on Form 8-K that will be incorporated herein by reference. We are not required to issue fractional shares upon the exercise of the warrants. No holders of the warrants will possess any rights as a stockholder under those warrants until the holder exercises those warrants. The warrants may be transferred independent of the common stock they were issued with, on a form of assignment, subject to all applicable laws.

LEGAL MATTERS

The validity of the securities offered by this prospectus supplement has been passed upon for us by Zysman, Aharoni, Gayer & Co./Sullivan & Worcester LLP, Boston, Massachusetts.

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\$15,000,000

PLURISTEM THERAPEUTICS INC.

Common Stock
Warrants

We may from time to time sell common stock and warrants to purchase common stock in one or more offerings for an aggregate initial offering price of \$15,000,000. We refer to the common stock and the warrants to purchase common stock collectively as the securities. This prospectus describes the general manner in which our securities may be offered using this prospectus. We will specify in an accompanying prospectus

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supplement the terms of the securities to be offered and sold. We may sell these securities to or through underwriters or dealers, directly to purchasers or through agents. We will set forth the names of any underwriters, dealers or agents in an accompanying prospectus supplement.

Our common stock is traded on the NASDAQ Capital Market under the symbol PSTI

Investing in our securities involves risks. See Risk Factors on page 3 of this prospectus.

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. Any representation to the contrary is a criminal offense.

This prospectus is dated July 1, 2008.

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You should rely only on the information contained in this prospectus and the documents incorporated by reference in this prospectus or to which we have referred you. We have not authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus does not constitute an offer to sell, or a solicitation of an offer to purchase, the securities offered by this prospectus in any jurisdiction to or from any person to whom or from whom it is unlawful to make such offer or solicitation of an offer in such jurisdiction. You should not assume that the information contained in this prospectus or any document incorporated by reference is accurate as of any date other than the date on the front cover of the applicable document. Neither the delivery of this prospectus nor any distribution of securities pursuant to this prospectus shall, under any circumstances, create any implication that there has been no change in the information set forth or incorporated by reference into this prospectus or in our affairs since the date of this prospectus. Our business, financial condition, results of operations and prospects may have changed since that date.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission using a shelf registration process. Under this shelf registration process, we may, from time to time, sell any combination of the securities described in this prospectus in one or more offerings up to a total dollar amount of \$15,000,000. This prospectus describes the securities we may offer and the general manner in which our securities may be offered by this prospectus. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. We may also add, update or change in the prospectus supplement any of the information contained in this prospectus. To the extent there is a conflict between the information contained in this prospectus and the prospectus supplement, you should rely on the information in the prospectus supplement, provided that if any statement in one of these documents is inconsistent with a statement in another document having a later date for example, a document incorporated by reference in this prospectus or any prospectus supplement the statement in the document having the later date modifies or supersedes the earlier statement.

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OUR COMPANY

We are engaged in the business of the development of mesenchymal and stem cell production technology and the commercialization of cell therapy products.

LEGAL MATTERS

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From May 2003 until March 2006, our business was focused on the development of stem cell production technology. Originally, our plan was to develop that technology to the point where we could license it to medical scientists and practitioners for their use in producing cell therapy products for sale in the marketplace. On March 6, 2006, we announced that our company was taking a new direction. Instead of looking to license our stem cell production technology, we decided to focus on developing the technology with the goal of producing cell therapy products ourselves for sale in the marketplace. On July 5, 2006 and October 16, 2006, we announced that our subsidiary, Pluristem Ltd., achieved a breakthrough in our preclinical study of bone marrow transplantation: The preclinical study showed that by adding PLX-I (PLacenta eXpanded cells) to Umbilical cord blood (UCB) stem cells during bone marrow transplantation (BMT), hematopoietic stem cell engraftment in mice showed up to a 500% increase in engraftment after irradiation and chemotherapy. On January 8, 2008, we announced that we achieved favorable results in demonstrating a revascularization effect after using our propriety PLX-PAD cells for the treatment of limb ischemia associated with peripheral artery disease (PAD). On April 7, 2008, we announced that the results from Fraunhofer Institute's additional pre-clinical study utilizing our proprietary PLacental eXpanded (PLX) cells in treating ischemic stroke showed statistical significance utilizing functional as well as anatomical endpoints.

On November 23, 2007, we changed our name to Pluristem Therapeutics Inc. On November 26, 2007, we effected a one for two hundred reverse stock split. Accordingly, all references to number of shares, common stock and per share data have been adjusted to reflect the stock split on a retroactive basis.

On December 10, 2007, our shares of common stock began trading on the NASDAQ Capital Market under the symbol PSTI. The shares were previously traded on the OTC Bulletin Board under the trading symbol PLRS.OB. On May 7, 2007, our shares also began trading on Europe's Frankfurt Stock Exchange, under the symbol PJT.

Effective on June 4, 2008, our authorized number of shares of our common stock was increased from 7,000,000 shares to 30,000,000 shares.

Our executive offices are located at MATAM Advanced Technology Park, Building No. 20, Haifa, Israel, our telephone number is 011 972 74 710 7171 and our website address is www.pluristem.com. The information on our website is not incorporated by reference in this prospectus and should not be considered to be part of this prospectus. Our website address is included in this prospectus as an inactive technical reference only. Our name and logo and the names of our products are our trademarks or registered trademarks. Unless the context otherwise requires, references in this prospectus to Pluristem, we, us, and our refer to Pluristem Therapeutics Inc. and its subsidiaries as required by the context.

RISK FACTORS

An investment in our securities involves significant risks. You should carefully consider the risk factors contained in any prospectus supplement and in our filings with the Securities and Exchange Commission, as well as all of the information contained in this prospectus, any prospectus supplement and the documents incorporated by reference in this prospectus, before you decide to invest in our securities. The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our operations.

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SPECIAL NOTE REGARDING FORWARD-LOOKING INFORMATION

This prospectus, any prospectus supplement and the documents we incorporate by reference in this prospectus contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 and other Federal securities laws. All statements, other than statements of historical fact, that we include in this prospectus, any prospectus supplement and in the documents we incorporate by reference in this prospectus, may be deemed forward-looking statements for purposes of the Securities Act of 1933, or the Securities Act, and the Securities Exchange Act of 1934, or the Exchange Act. We use the words anticipate, believe, estimate, expect, intend, may, plan, will, would and similar expressions to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We cannot guarantee that we actually will achieve the plans, intentions or expectations disclosed in our forward-looking statements and, accordingly, you should not place undue reliance on our forward-looking statements. There are a number of important factors that could cause actual results or events to differ materially from the forward-looking statements that we make, including the factors included in the documents we incorporate by reference in this prospectus. You should read these factors and the other cautionary statements made in the documents we incorporate by reference as being applicable to all related forward-looking statements wherever they appear in this prospectus, any prospectus supplement and any document incorporated by reference. We caution you that, except as otherwise required by law, we do not undertake any obligation to update forward-looking statements we make.

USE OF PROCEEDS

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Unless we otherwise indicate in the applicable prospectus supplement, we currently intend to use the net proceeds from the sale of the securities for research and product development activities, and for working capital and other general corporate purposes.

We may set forth additional information on the use of net proceeds from the sale of securities we offer under this prospectus in a prospectus supplement relating to the specific offering. Pending the application of the net proceeds, we intend to invest the net proceeds in investment-grade, interest-bearing securities.

THE SECURITIES WE MAY OFFER

The descriptions of the securities contained in this prospectus, together with the applicable prospectus supplement, summarize the material terms and provisions of the various types of securities that we may offer. We will describe in the applicable prospectus supplement relating to any securities the particular terms of the securities offered by that prospectus supplement. If we so indicate in the applicable prospectus supplement, the terms of the securities may differ from the terms we have summarized below. We may also include in the prospectus supplement information, where applicable, about material United States federal income tax consequences relating to the securities, and the securities exchange or market, if any, on which the securities will be listed.

We may sell from time to time, in one or more offerings, one or more of the following securities:

- o common stock; and
- o warrants to purchase common stock.

The total initial offering price of all securities that we may issue in these offerings will not exceed \$15,000,000.

DESCRIPTION OF COMMON STOCK

For a description of the material terms and provisions of our common stock and any other class of our securities which qualifies or limits our common stock, please see the applicable prospectus supplement, as well as the description of our capital stock in our Registration Statement on Form 8-A, as amended, which is incorporated by reference in this prospectus.

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplement, summarizes the material terms and provisions of the warrants that we may offer under this prospectus and the related warrant agreements and warrant certificates. While the terms summarized below will apply generally to any warrants that we may offer, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. If we so indicate in a prospectus supplement, the terms of any warrants offered under that prospectus supplement may differ from the terms we describe below. Specific warrant agreements will contain additional important terms and provisions and will be incorporated by reference as an exhibit to the registration statement.

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General

We may issue warrants for the purchase of common stock in one or more series. We may issue warrants independently or together with common stock, and the warrants may be attached to or separate from the common stock.

We will evidence each series of warrants by warrant certificates that we will issue under a separate agreement or by warrant agreements that we will enter into directly with the purchasers of the warrants. If we evidence warrants by warrant certificates, we will enter into a warrant agreement with a warrant agent. We will indicate the name and address of the warrant agent, if any, in the applicable prospectus supplement relating to a particular series of warrants.

We will describe in the applicable prospectus supplement the terms of the series of warrants, including:

- o the offering price and aggregate number of warrants offered;
- o the currency for which the warrants may be purchased or exercised;

- o if applicable, the terms of the common stock with which the warrants are issued and the number of warrants issued with such common stock;
- o if applicable, the date on and after which the warrants and the related common stock will be separately transferable;
- o the number of shares of common stock purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;
- o the manner in which the warrants may be exercised, which may include by cashless exercise;
- o the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreement and the warrants;
- o the terms of any rights to redeem or call the warrants;
- o any provisions for changes to or adjustments in the exercise price or number of shares of common stock issuable upon exercise of the warrants;
- o the dates on which the right to exercise the warrants will commence and expire;
- o the manner in which the warrant agreement and warrants may be modified;
- o the material United States federal income tax consequences of holding or exercising the warrants;
- o the terms of the common stock issuable upon exercise of the warrants; and
- o any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

Before exercising their warrants, holders of warrants will not have any of the rights of holders of the common stock purchasable upon such exercise, including the right to receive dividends, if any, or payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

Exercise of Warrants

Each warrant will entitle the holder to purchase the number of shares of common stock that we specify in the applicable prospectus supplement at the exercise price that we describe in the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to 5:00 P.M., Eastern U.S. time, on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Holders of the warrants may exercise the warrants by delivering to the warrant agent or us the warrant certificate or warrant agreement representing the warrants to be exercised together with specified information, and by paying the required amount to the warrant agent or us in immediately available funds, as provided in the applicable prospectus supplement. We will set forth on the reverse side of the warrant certificate or in the warrant agreement and in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to the warrant agent or us in connection with such exercise. Certain of the warrants may entitle the holders thereof to cashless exercise under certain circumstances. This option entitles the warrant holder to elect to receive fewer shares of common stock without paying the cash exercise price. The number of shares to be issued would be determined by a formula based on the total number of shares to which the warrant holder is entitled, the market price of the common stock on the date of exercise or the days prior to the exercise and the applicable exercise price of the warrants.

Upon receipt of the required payment, if need to, and the warrant certificate or the warrant agreement, as applicable, properly completed and duly executed at the corporate trust office of the warrant agent, if any, at our offices or at any other office indicated in the applicable prospectus supplement, we will issue and deliver the common stock purchasable upon such exercise. If fewer than all of the warrants represented by the warrant certificate or warrant agreement are exercised, then we will issue a new warrant certificate or warrant agreement for the remaining amount of warrants.

Enforceability of Rights by Holders of Warrants

If we appoint a warrant agent, any warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more

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than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby in one or more of the following ways from time to time:

- o through agents to the public or to investors;
- o to one or more underwriters for resale to the public or to investors;
- o in at the market offerings, within the meaning of Rule 415(a)(4) of the Securities Act, to or through a market maker or into an existing trading market, on an exchange or otherwise;
- o directly to investors in privately negotiated transactions;
- o directly to a purchaser pursuant to what is known as an equity line of credit as described below; or
- o through a combination of these methods of sale.

The securities that we distribute by any of these methods may be sold, in one or more transactions, at:

- o a fixed price or prices, which may be changed;
- o market prices prevailing at the time of sale;
- o prices related to prevailing market prices; or
- o negotiated prices.

The accompanying prospectus supplement will describe the terms of the offering of our securities, including:

- o the name or names of any agents or underwriters;
- o any securities exchange or market on which the common stock may be listed;
- o the purchase price and commission, if any, to be paid in connection with the sale of the securities being offered and the proceeds we will receive from the sale;
- o any over-allotment options pursuant to which underwriters may purchase additional securities from us;
- o any underwriting discounts or agency fees and other items constituting underwriters or agents compensation;
- o any public offering price; and
- o any discounts or concessions allowed or reallocated or paid to dealers.

If underwriters are used in the sale, they will acquire the securities for their own account and may resell the securities from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of the sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. We may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all the securities offered by the prospectus supplement. We may change from time to time the public offering price and any discounts or concessions allowed or reallocated or paid to dealers.

We may also sell securities pursuant to an equity line of credit. In such event, we will enter into a common stock purchase agreement with the purchaser to be named therein, which will be described in a Current Report on Form 8-K that we will file with the SEC. In that Form 8-K, we

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will describe the total amount of money that we may require the purchaser to invest under the purchase agreement and the other terms of purchase, and any rights that the purchaser is granted to purchase securities from us. In addition to our issuance of shares of common stock to the equity line purchaser pursuant to the purchase agreement, this prospectus (and the applicable prospectus supplement or post-effective amendment) also covers the resale of those shares from time to time by the equity line purchaser to the public. The equity line purchaser will be considered an underwriter within the meaning of Section 2(a)(11) of the Securities Act. Its resales may be effected through a number of methods, including without limitation, ordinary brokerage transactions and transactions in which the broker solicits purchasers and block trades in which the broker or dealer so engaged will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction. The equity line purchaser will be bound by various anti-manipulation rules of the SEC and may not, for example, engage in any stabilization activity in connection with its resales of our securities and may not bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities other than as permitted under the Exchange Act.

We may sell our securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of our common stock, and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, our agent will act on a best-efforts basis for the period of its appointment.

We may provide underwriters and agents with indemnification against civil liabilities related to this offering, including liabilities under the Securities Act, or contribution with respect to payments that the underwriters or agents may make with respect to these liabilities. Underwriters and agents may engage in transactions with, or perform services for, us in the ordinary course of business. We will describe such relationships in the prospectus supplement naming the underwriter or agent and the nature of any such relationship.

Rules of the Securities and Exchange Commission may limit the ability of any underwriters to bid for or purchase securities before the distribution of the shares of common stock is completed. However, underwriters may engage in the following activities in accordance with the rules:

- o *Stabilizing transactions* Underwriters may make bids or purchases for the purpose of pegging, fixing or maintaining the price of the shares, so long as stabilizing bids do not exceed a specified maximum.
- o *Over-allotments and syndicate covering transactions* Underwriters may sell more shares of our common stock than the number of shares that they have committed to purchase in any underwritten offering. This over-allotment creates a short position for the underwriters. This short position may involve either covered short sales or naked short sales. Covered short sales are short sales made in an amount not greater than the underwriters' over-allotment option to purchase additional shares in any underwritten offering. The underwriters may close out any covered short position either by exercising their over-allotment option or by purchasing shares in the open market. To determine how they will close the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market, as compared to the price at which they may purchase shares through the over-allotment option. Naked short sales are short sales in excess of the over-allotment option. The underwriters must close out any naked position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that, in the open market after pricing, there may be downward pressure on the price of the shares that could adversely affect investors who purchase shares in the offering.
- o *Penalty bids* If underwriters purchase shares in the open market in a stabilizing transaction or syndicate covering transaction, they may reclaim a selling concession from other underwriters and selling group members who sold those shares as part of the offering.

Similar to other purchase transactions, an underwriter's purchases to cover the syndicate short sales or to stabilize the market price of our common stock may have the effect of raising or maintaining the market price of our common stock or preventing or mitigating a decline in the market price of our common stock. As a result, the price of the shares of our common stock may be higher than the price that might otherwise exist in the open market. The imposition of a penalty bid might also have an effect on the price of shares if it discourages resales of the shares.

If commenced, the underwriters may discontinue any of these activities at any time.

Our common stock is traded on the NASDAQ Capital Market. One or more underwriters may make a market in our common stock, but the underwriters will not be obligated to do so and may discontinue market making at any time without notice. We cannot give any assurance as to liquidity of the trading market for our common stock.

Any underwriters who are qualified market makers on the NASDAQ Capital Market may engage in passive market making transactions in the common stock in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the common stock. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest

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independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

In compliance with guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum commission or discount to be received by any FINRA member or independent broker dealer may not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

VALIDITY OF SECURITIES

The validity of the securities offered hereby will be passed upon for us by Zysman, Aharoni, Gayer & Co. /Sullivan & Worcester, LLP, Boston, Massachusetts.

EXPERTS

The financial statements of Pluristem Therapeutics Inc. appearing in its Annual Report (Form 10-KSB) for the year ended June 30, 2007 have been audited by Kost Forer Gabbay & Kasierer A member of Ernst & Young Global, independent registered public accounting firm, as set forth in their report thereon, included therein, and incorporated herein by reference. Such financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file reports, proxy statements and other documents with the Securities and Exchange Commission. You may read and copy any document we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference room.

The SEC also maintains a website, the address of which is www.sec.gov. That site also contains our annual, quarterly and current reports, proxy statements, information statements and other information.

We have filed this prospectus with the SEC as part of a registration statement on Form S-3 under the Securities Act. This prospectus does not contain all of the information set forth in the registration statement because some parts of the registration statement are omitted in accordance with the rules and regulations of the SEC. You can obtain a copy of the registration statement from the SEC at the address listed above or from the SEC's website.

We also maintain a website at www.pluristem.com, through which you can access our SEC filings. The information set forth on our website is not part of this prospectus.

INCORPORATION OF DOCUMENTS BY REFERENCE

We are incorporating by reference certain documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents. The information in the documents incorporated by reference is considered to be part of this prospectus. Statements contained in documents that we file with the SEC and that are incorporated by reference in this prospectus will automatically update and supersede information contained in this prospectus, including information in previously filed documents or reports that have been incorporated by reference in this prospectus, to the extent the new information differs from or is inconsistent with the old information.

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We have filed or may file the following documents with the SEC. These documents are incorporated herein by reference as of their respective dates of filing:

- o Our Annual Report on Form 10-KSB for the year ended June 30, 2007;
- o Our Quarterly Report on Form 10-QSB for the quarter ended March 31, 2008;
- o Our Quarterly Report on Form 10-QSB for the quarter ended December 31, 2007;
- o Our Quarterly Report on Form 10-QSB for the quarter ended September 30, 2007;

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- o Our Current Report on Form 8-K, as filed with the SEC on April 10, 2008;
- o Our Current Report on Form 8-K, as filed with the SEC on December 7, 2007;
- o Our Current Report on Form 8-K, as filed with the SEC on November 26, 2007;
- o Our Current Report on Form 8-K, as filed with the SEC on November 9, 2007;
- o Our Current Report on Form 8-K, as filed with the SEC on November 6, 2007;
- o Our Current Report on Form 8-K, as filed with the SEC on October 12, 2007;
- o Our Current Report on Form 8-K, as filed with the SEC on September 5, 2007;
- o The description of our common stock contained in our Registration Statement on Form 8-A filed with the SEC, as amended; and
- o All documents filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (1) after the date of the filing of this registration statement and prior to its effectiveness and (2) until all of the common stock to which this prospectus relates has been sold or the offering is otherwise terminated, except in each case for information contained in any such filing where we indicate that such information is being furnished and is not to be considered filed under the Exchange Act, will be deemed to be incorporated by reference in this prospectus and the accompanying prospectus supplement and to be a part hereof from the date of filing of such documents.

We will provide a copy of the documents we incorporate by reference, at no cost, to any person who receives this prospectus. To request a copy of any or all of these documents, you should write or telephone us at MATAM Advanced Technology Park, Building No. 20, Haifa, 31905, Israel, Attention: Yaky Yanay, (+972) 74 710 7171.