

PROSPECTUS SUPPLEMENT
(TO PROSPECTUS DATED JULY 3, 2002)

5,000,000 SHARES

STEMCELLS, INC.

COMMON STOCK

You should read this prospectus supplement and the related prospectus carefully before you invest. Both documents contain information you should consider when making your investment decision.

INVESTING IN OUR COMMON STOCK INVOLVES A HIGH DEGREE OF RISK. SEE "RISK FACTORS" BEGINNING ON PAGE S-3 OF THIS PROSPECTUS SUPPLEMENT AND PAGE 2 OF THE ACCOMPANYING PROSPECTUS TO READ ABOUT FACTORS YOU SHOULD CONSIDER BEFORE BUYING SHARES OF OUR COMMON STOCK.

We are offering 5,000,000 shares of our common stock to an institutional investor. Under the terms of the purchase agreement between the investor and us, we negotiated the purchase price for these shares of common stock at an aggregate price of \$9,500,000, or \$1.90 per share. On December 8, 2003, the last reported sales price of our common stock on the Nasdaq National Market was \$2.10 per share. We expect this transaction to close on December 9, 2003.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY OTHER 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.

The date of this prospectus supplement is December 9, 2003

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GENERAL.

This prospectus supplement is part of a registration statement that we filed with the SEC using a “shelf” registration process. Under this shelf process, we may offer up to 15,000,000 shares of our common stock from time to time in one or more offerings. This prospectus supplement provides specific information about the offering of 5,000,000 shares of our common stock under the shelf registration statement. You should read carefully this prospectus supplement, the accompanying prospectus, and the information that we incorporate by reference into those documents. In case there are any differences or inconsistencies between this prospectus supplement the prospectus, and the information incorporated by reference, you should only rely on the information contained in the document with the latest date. Please refer to the information and documents listed under the heading “Where You Can Find More Information” in the accompanying prospectus. Since we filed the last amendment to the registration statement, we have filed with the SEC the following documents which are incorporated by reference into the prospectus and this prospectus supplement:

- * Report on Form 10-K for the year ended December 31, 2002.
- * Report on Form 10-K/A for the year ended December 31, 2001.
- * Reports on Form 10-Q for the quarters ended June 30, 2002, September 30, 2002, March 31, 2003, June 30, 2003 and September 30, 2003.
- * Report on Form 10-Q/A for the quarter ended March 31, 2002.
- * Reports on Form 8-K dated August 27, 2002, December 20, 2002, April 15, 2003, May 12, 2003, May 15, 2003, October 22, 2003, November 14, 2003 and December 8, 2003.
- * Definitive Proxy Statement on Schedule 14A filed on April 22, 2003.

You should rely only on the information provided or incorporated by reference in this prospectus supplement and the related prospectus. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus supplement is accurate as of any date other than the date on the front of these documents.

RISK FACTORS

THE OFFERING INVOLVES A HIGH DEGREE OF RISK. YOU SHOULD CAREFULLY CONSIDER THE RISKS DESCRIBED BELOW AND THE OTHER INFORMATION INCLUDED OR INCORPORATED BY REFERENCE IN THIS PROSPECTUS SUPPLEMENT AND THE ACCOMPANYING PROSPECTUS BEFORE MAKING AN INVESTMENT DECISION REGARDING STEMCELLS, INC. OUR BUSINESS, FINANCIAL CONDITION OR RESULTS OF OPERATIONS COULD BE MATERIALLY ADVERSELY AFFECTED IF ANY OF THESE RISKS ACTUALLY OCCUR. CONSEQUENTIALLY, THE TRADING PRICE OF OUR COMMON STOCK COULD DECLINE, RESULTING IN THE LOSS OF ALL OR PART OF YOUR INVESTMENT.

OUR FINANCIAL SITUATION IS PRECARIOUS.

We have incurred significant operating losses and negative cash flows since inception. We have not achieved profitability and may not be able to realize sufficient revenues to achieve or sustain profitability in the future. Although we have taken actions to reduce our expense rates over the last several quarters, we do not expect to be profitable in the next several years, but rather expect to incur additional operating losses. We have very limited liquidity and capital resources and must quickly obtain significant additional capital resources in order to sustain our product development efforts, for acquisition of technologies and intellectual property rights, for preclinical and clinical testing of our anticipated products, pursuit of regulatory approvals, acquisition of capital equipment, laboratory and office facilities, establishment of production capabilities, for general and administrative expenses and other working capital requirements. We rely on cash balances and proceeds from equity and debt offerings, proceeds from the transfer or sale of our intellectual property rights, equipment, facilities or investments, and government grants and funding from collaborative arrangements, if obtainable, to fund our operations. Unless we obtain additional capital to sustain us on a longer-term basis, these conditions may raise doubt about our ability to continue as a going concern. Our financial statements do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classification of liabilities that may result from the outcome of this uncertainty.

We intend to pursue opportunities to obtain additional financing in the future through equity and debt financings, grants and collaborative research arrangements. The source, timing and availability of any future financing will depend principally upon market conditions, interest rates and, more specifically, on our progress in our exploratory, preclinical and future clinical development programs. Funding may not be available when needed — at all, or on terms acceptable to us. At this time, we only expect our capital resources to be sufficient to fund our operations into 2004. Lack of necessary funds may require us to delay, scale back or eliminate some or all of our research and product development programs and/or our capital expenditures or to license our potential products or technologies to third parties.

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WE HAVE PAYMENT OBLIGATIONS RESULTING FROM REAL PROPERTY OWNED OR LEASED BY US IN RHODE ISLAND, WHICH DIVERTS FUNDING FROM OUR STEM CELL RESEARCH AND DEVELOPMENT.

Prior to our reorganization in 1999 and the consolidation of our business in California, we carried out our encapsulated cell therapy programs in Lincoln, Rhode Island, where we also had our administrative offices. Although we have vacated the Rhode Island facilities, we remain obligated to make lease payments and payments for operating costs of approximately \$1,400,000 per year for our former science and administrative facility, which we have leased through June 30, 2013, and debt service payments and payments for operating costs of approximately \$600,000 per year for our former encapsulated cell therapy pilot manufacturing facility, which we own. We have currently subleased a portion of the science and administrative facility, but cannot be sure that we will be able to do so for the entire duration of our obligation. We are seeking to sublease the remaining portion of the science and administrative facility. We have currently subleased the entire pilot manufacturing facility, but may not be able to sublease or sell the facility in the future once the current sublease agreements expire. These continuing costs significantly reduce our cash resources and adversely affect our ability to fund further development of our stem cell technology.

WE HAVE A HISTORY OF OPERATING LOSSES AND WE MAY FAIL TO OBTAIN REVENUES OR BECOME PROFITABLE.

We expect to continue to incur substantial operating losses in the future in order to conduct our research and development activities, and, if those activities are successful, to fund clinical trials and other expenses. These expenses include the cost of acquiring technology, product testing, acquiring regulatory approvals, establishing production, marketing, sales and distribution programs and administrative expenses. We have not earned any revenues from sales of any product. All of our past revenues have been derived from, and any revenues we may obtain for the foreseeable future are expected to be derived from, cooperative agreements, research grants, investments and interest on invested capital. We currently have no cooperative agreements and we have only one current research grant for our stem cell technology, and we may not obtain any such agreements or additional grants in the future or receive any revenues from them.

WE COMPETE WITH COMPANIES THAT HAVE SIGNIFICANT ADVANTAGES OVER US.

The market for therapeutic products that address degenerative diseases is large and competition is intense. For example, while we believe that our neural stem cells may have application to Parkinson's disease, we have no clinical program directed toward that disease at this time. More than twenty companies worldwide, including Merck, Roche, Cephalon, Schering AG and Pharmacia Corp., have at least one clinical trial for Parkinson's disease in progress at some phase, and some have more than one. At least seven companies already have products on the market. We expect competition to increase.

In general, we believe that our most significant competitors will be fully integrated pharmaceutical companies and more established biotechnology companies, such as Biogen, Inc., Genzyme and Celgene. These companies already produce or are developing treatments for degenerative diseases that are not stem cell-based, and they have significantly greater capital resources and expertise in research and development, manufacturing, testing, obtaining regulatory approvals and marketing than we do. Many of these potential competitors have significant products approved or in development that could be competitive with our potential products, and also operate large, well-funded research and development programs. In addition, we expect to compete with other companies, some of which are smaller and may be privately owned, including CellFactors, Diacrin, Geron, Athersys, Titan Pharmaceuticals, Vesta Therapeutics, Layton Bioscience Inc., NeuralStem Biopharmaceuticals, NeuroNova, and ReNeuron and with universities and other research institutions who are developing treatments for degenerative diseases that are stem cell-based.

Our competitors may succeed in developing technologies and products that are more effective than the ones we are developing, or that would render our technology obsolete or non-competitive. The relative speed with which we and our competitors can develop products, complete the clinical testing and approval processes, and supply commercial quantities of a product to market will affect our ability to gather market acceptance and market share. With respect to clinical testing, competition may delay progress by limiting the number of clinical investigators and patients available to test our potential products.

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WE MAY BE DELISTED FROM THE NASDAQ SMALLCAP MARKET IF WE DO NOT MEET THE MAINTENANCE CRITERIA, WHICH COULD ELIMINATE THE TRADING MARKET FOR OUR COMMON STOCK.

Our common stock is quoted on the Nasdaq SmallCap Market. In order to continue to be included in the Nasdaq SmallCap Market, a company must meet Nasdaq's maintenance criteria. The maintenance criteria most applicable to us requires a minimum bid price of \$1.00 per share and, additionally, we must maintain \$2.5 million in stockholders' equity. As of the date of this prospectus supplement we are in compliance with Nasdaq's maintenance criteria, but we have failed to comply with the maintenance criteria in the past. Failure to meet these maintenance criteria in the future may result in the delisting of our common stock from the Nasdaq SmallCap Market. The delisting of our common stock from the Nasdaq SmallCap Market (should we fail to meet its continued listing requirements) could adversely affect the market price and market liquidity of our common stock. If our common stock were delisted, in order to have our common stock relisted on the Nasdaq SmallCap Market we would be required to meet the criteria for initial listing, which are more stringent than the maintenance criteria. In addition, if we were delisted from the Nasdaq SmallCap Market, trading, if any, of our common stock would thereafter have to be conducted in the over-the-counter market on the "pink sheets" or, if available, the NASD's "Electronic Bulletin Board." In such an event, an investor could find it more difficult to dispose of, or to obtain accurate quotations as to the market value of, our common stock, which could further severely limit the market liquidity of our common stock and the ability of investors to trade our common stock.

If our common stock were delisted from the Nasdaq SmallCap Market, we would not be able to draw down any additional funds on our existing equity line, and we also might be required to pay damages to holders of our common stock under agreements we previously entered into with them in connection with equity financings. Finally, if our common stock were removed from listing on the Nasdaq SmallCap Market, it might become more difficult for us to raise funds through the sale of our common stock or securities convertible into our common stock.

THE SALE AND ISSUANCE OF THE 3% CUMULATIVE CONVERTIBLE PREFERRED STOCK WILL HAVE AN IMPACT TO EARNINGS AVAILABLE TO COMMON STOCKHOLDERS.

Of the proceeds from our sale of the 3% cumulative convertible preferred stock in 2001, approximately \$3.1 million was allocated to the common stock warrants and the conversion feature included with the subscription agreements, and was reflected as an increase to additional paid-in capital and a decrease to the 3% cumulative convertible preferred stock. This \$3.1 million is being accreted to the preferred stock over the term of the redemption period. This accretion, along with the preferred stock dividends, will increase the net loss (reduce the net income) available to common stockholders. On November 11, 2003 the holder of the 3% cumulative convertible preferred stock converted all outstanding shares into common stock.

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MARKET FOR OUR COMMON STOCK.

On December 8, 2003, the last reported sales price of our common stock on the Nasdaq SmallCap Market was \$2.10 per share. Our common stock is traded on the Nasdaq SmallCap Market under the symbol “STEM.”

As of December 3, 2003 and before the issuance of the 5,000,000 shares pursuant to this prospectus supplement, we had 35,969,400 shares of common stock outstanding.

USE OF PROCEEDS.

The net proceeds to us from this offering will be approximately \$9,500,000. We plan to use the net proceeds for general corporate purposes, including activities described in the prospectus. Pending those uses, to the extent the proceeds exceed the amount of cash we estimate we will need for current expenditures, we will invest the net proceeds in interest-bearing United States Government securities.

PLAN OF DISTRIBUTION.

The sale of common stock to an institutional investor is being made directly by us on terms negotiated between the investor and us.

DISCLOSURE REGARDING FORWARD-LOOKING STATEMENTS.

This prospectus supplement and the information incorporated by reference into this prospectus supplement contains a number of forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act. Statements in this document that are not historical facts are forward-looking statements. Such forward-looking statements include those relating to:

- * potential strategic collaborations with others
- * future capital needs and plans for additional funding
- * product development plans and marketing strategies
- * clinical trial expectations
- * projected capital needs and financial performance
- * timing and results of regulatory approvals and the effect of government regulation
- * expectations as to competitive conditions

Statements containing terms such as “believes,” “plans,” “expects,” “intends,” “estimates,” “anticipates” and other phrases of similar meaning imply uncertainty and are also forward-looking statements.

These forward-looking statements involve known or unknown risks and uncertainties which may cause our actual results in future periods to differ materially from our current expectations. We make cautionary statements in certain sections of the prospectus, including

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under the caption “Risk Factors.” These cautionary statements apply to all forward-looking statements wherever they appear in this prospectus supplement or the prospectus, or in the materials incorporated by reference into this prospectus supplement or the prospectus. In light of these risks, uncertainties and assumptions, the forward-looking statement discussed in this prospectus supplement, the prospectus or other documents incorporated by reference might not occur. You should not place undue reliance on any forward-looking statement.