

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM S-8

**REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

StemCells, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation or organization)

94-3078125
(I.R.S. Employer
Identification No.)

**3155 Porter Drive
Palo Alto, CA 94304
(650) 475-3100**

(Address of principal executive offices, including zip code)

**StemCells, Inc.
Amended and Restated 2006 Equity Incentive Plan**
(Full title of the plan)

**Kenneth B. Stratton, Esq.
General Counsel
StemCells, Inc.
3155 Porter Drive
Palo Alto, CA 94304
(650) 475-3100**

(Name, address and telephone number, including area code, of agent for service)

Please send copies of all communications to:

**Geoffrey B. Davis, Esq.
Ropes & Gray LLP
One International Place
Boston, MA 02110
(617) 951-7000
(617) 951-7050 (facsimile)**

CALCULATION OF REGISTRATION FEE

<i>Title of Each Class of Securities to be Registered</i>	<i>Amount to be Registered⁽¹⁾⁽²⁾</i>	<i>Proposed Maximum Offering Price Per Share⁽¹⁾</i>	<i>Proposed Maximum Aggregate Offering Price⁽¹⁾</i>	<i>Amount of Registration Fee</i>
Common Stock, \$0.01 par value per share	5,605,250 shares	\$2.315 ⁽³⁾	\$12,976,153	\$399.00
Common Stock, \$0.01 par value per share	25,000 shares ⁽⁴⁾	\$2.28	\$57,000	\$1.75
Common Stock, \$0.01 par value per share	3,369,750 shares ⁽⁵⁾	\$2.00	\$6,739,500	\$207.00
TOTALS	9,000,000		\$19,772,653	\$607.75

- (1) Pursuant to Rule 416(a) under the Securities Act of 1933, this registration statement also covers such additional shares of Common Stock as may be issued to prevent dilution from stock splits, stock dividends and similar transactions.
- (2) Represents (i) 6,000,000 shares of Common Stock authorized for issuance under the Amended and Restated 2006 Equity Incentive Plan of StemCells, Inc. (the "2006 Incentive Plan"), less shares of common stock reserved for issuance pursuant to options previously granted under the 2006 Incentive Plan, plus (ii) up to an additional 3,000,000 shares of Common Stock that may be added pursuant to the "evergreen" provision contained in the 2006 Incentive Plan. The "evergreen" provision provides that on each January 1 (beginning January 1, 2008) an additional number of shares equal to 4% of then-outstanding shares of the Registrant will be added to the shares authorized for issuance under the 2006 Incentive Plan.

- (3) The offering price of \$2.315 per share has been estimated solely for the purpose of determining the registration fee pursuant to Rule 457(c) and 457(h) (1) on the basis of the average high and low prices of the common stock, par value \$0.01 per share, as reported on the Nasdaq Global Market on July 18, 2007.
 - (4) Represents shares of Common Stock reserved for issuance upon the exercise of options previously granted under the 2006 Incentive Plan with an exercise price of \$2.28 per share.
 - (5) Represents shares of Common Stock reserved for issuance upon the exercise of options and stock appreciation rights with an exercise price of \$2.00 per right previously granted under the 2006 Incentive Plan.
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PART I

INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

Note: The document(s) containing the information required by Item 1 of Part I of this Form S-8 and the statement of availability of information of StemCells, Inc. (the "Registrant"), and other information required by Item 2 of Part I of this Form S-8 will be sent or given to employees as specified by Rule 428 under the Securities Act of 1933, as amended (the "Securities Act"). In accordance with Rule 428 and the requirements of Part I of Form S-8, such documents are not being filed with the Securities and Exchange Commission (the "Commission") either as part of this Registration Statement or as prospectuses or prospectus supplements pursuant to Rule 424. The Registrant shall maintain a file of such documents in accordance with the provisions of Rule 428. Upon request, the Registrant shall furnish to the Commission or its staff a copy or copies of any or all of the documents included in such file.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The Registrant hereby incorporates the following documents herein by reference:

- (a) The Registrant's latest Annual Report on Form 10-K for the fiscal year ended December 31, 2006 filed with the Commission pursuant to the Securities Exchange Act of 1934, as amended (the "Exchange Act"), on March 15, 2007.
- (b) The Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2007 filed with the Commission pursuant to the Exchange Act on May 7, 2007.
- (c) The Registrant's Current Reports on Form 8-K filed with the Commission on January 12, 2007 and on May 7, 2007 (information reported under Item 5.03 only).
- (d) The description of the common stock of the Registrant contained in the Registrant's Registration Statement on Form 8-A (File No. 1-19871), including all amendments and reports filed for the purposes of updating such description.

All documents subsequently filed by the Registrant pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, prior to the filing of a post-effective amendment to this Registration Statement that indicates that all securities offered have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated herein by reference from the date of filing of such documents.

Item 4. Description of Securities.

Not applicable.

Item 5. Interests of Named Experts and Counsel.

Not applicable.

Item 6. Indemnification of Directors and Officers.

The Registrant is incorporated under the laws of the State of Delaware. Section 145 (“Section 145”) of the General Corporation Law of the State of Delaware, as the same exists or may hereafter be amended (the “General Corporation Law”) provides, inter alia, that a Delaware corporation may indemnify any persons who were, are or are threatened to be made, parties to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of such corporation), by reason of the fact that such person is or was an officer, director, employee or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys’ fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided such person acted in good faith and in a manner he reasonably believed to be in, or not opposed to, the corporation’s best interests and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his conduct was illegal. In addition, the statutes of Delaware contain provisions to the general effect that any director shall in the performance of his duties be fully protected in relying in good faith upon the books of account or records of the corporation or statements prepared by any official of the corporation.

Section 145 further authorizes a corporation to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or enterprise, against any liability asserted against him and incurred by him in any such capacity, arising out of his status as such, whether or not the corporation would otherwise have the power to indemnify him under Section 145.

Section 2802 of the California Labor Code generally requires employers to indemnify employees for all necessary expenditures or losses, including but not limited to attorney’s fees, incurred by the employee in direct consequence of the employee’s discharge of his or her duties.

The Registrant’s restated certificate of incorporation provides that the registrant shall indemnify its directors and officers to the full extent permitted by the laws of the State of Delaware. The Registrant’s restated certificate of incorporation provides that the registrant’s directors and officers shall not be liable to the registrant or its stockholders for monetary damages for breach of fiduciary duty as a director, except to the extent that the exculpation from liabilities is not permitted under the General Corporation Law as in effect at the time such liability is determined. The Registrant’s By-laws provide that the Registrant shall indemnify its directors and officers to the extent permitted by the General Corporation Law of the State of Delaware and that directors may reasonably rely upon the books and records of the Registrant as well as upon the opinions, reports and statements presented to the directors by Registrant’s officers, employees, consultants and other advisors.

All of the Registrant’s directors and officers are covered by insurance policies maintained by the Registrant against specified liabilities for actions taken in their capacities as such, including liabilities under the Securities Act.

Item 7. Exemption From Registration Claimed.

Not applicable.

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Item 8. Exhibits.

<u>Exhibit</u>	
4.1	Amended and Restated 2006 Equity Incentive Plan.
5.1	Opinion of Ropes & Gray LLP.
23.1	Consent of Grant Thornton LLP.
23.3	Consent of Ropes & Gray LLP (included in the opinion filed as Exhibit 5.1).
24.1	Power of Attorney (included on the signature page of this Registration Statement under the caption "Power of Attorney").

Item 9. Undertakings.

(a) The undersigned Registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933, as amended (the "Securities Act");
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of a prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement;

provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) above shall not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or 15(d) of the Exchange Act that are incorporated by reference in the Registration Statement.

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- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (b) The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the Registration Statement shall be deemed to be a new Registration Statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Palo Alto, California, on this 20th day of July, 2007.

STEMCELLS, INC.

By: /s/ Martin M. McGlynn

Name: Martin M. McGlynn

Title: President and Chief Executive Officer

POWER OF ATTORNEY

Each person whose signature appears below constitutes and appoints Martin M. McGlynn and Rodney K.B. Young, and each of them singly, his or her true and lawful attorney-in-fact and agent with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement on Form S-8 to be filed by StemCells, Inc., and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitutes, may lawfully do or cause to be done by virtue hereof.

* * * *

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated:

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Martin M. McGlynn</u> Martin M. McGlynn	President, Chief Executive Officer and Director	July 9, 2007
<u>/s/ Rodney K.B. Young</u> Rodney K.B. Young	Chief Financial Officer (Principal Financial Officer)	July 11, 2007
<u>/s/ George Koshy</u> George Koshy	Chief Accounting Officer (Principal Accounting Officer)	July 11, 2007
<u>/s/ John J. Schwartz, Ph.D</u> John J. Schwartz, Ph.D	Chairman	July 6, 2007
<u>/s/ Eric H. Bjerkholt</u> Eric H. Bjerkholt	Director	July 10, 2007
<u>/s/ Ricardo B. Levy, Ph.D</u> Ricardo B. Levy, Ph.D	Director	July 8, 2007
<u>/s/ Roger M. Perlmutter M.D., Ph.D.</u> Roger M. Perlmutter M.D., Ph.D.	Director	July 10, 2007
<u>/s/ Desmond H. O'Connell, Jr.</u> Desmond H. O'Connell, Jr.	Director	July 9, 2007
<u>/s/ Irving L. Weissman, M.D.</u> Irving L. Weissman, M.D.	Director	July 6, 2007

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- 4.1 Amended and Restated 2006 Equity Incentive Plan
- 5.1 Opinion of Ropes & Gray LLP.
- 23.1 Consent of Grant Thornton LLP.
- 23.3 Consent of Ropes & Gray LLP (included in the opinion filed as Exhibit 5.1).
- 24.1 Power of Attorney (included on the signature page of this Registration Statement under the caption “Power of Attorney”).

StemCells, Inc.

AMENDED AND RESTATED
2006 EQUITY INCENTIVE PLAN**1. DEFINED TERMS**

Exhibit A, which is incorporated by reference, defines the terms used in the Plan and sets forth certain operational rules related to those terms.

2. PURPOSE

The Plan has been established to advance the interests of the Company by providing for the grant to Participants of Stock-based and other incentive Awards.

3. ADMINISTRATION

The Administrator has discretionary authority, subject only to the express provisions of the Plan, to interpret the Plan; determine eligibility for and grant Awards; determine, modify or waive the terms and conditions of any Award; prescribe forms, rules and procedures; and otherwise do all things necessary to carry out the purposes of the Plan. In the case of any Award intended to be eligible for the performance-based compensation exception under Section 162(m), the Administrator will exercise its discretion consistent with qualifying the Award for that exception. Determinations of the Administrator made under the Plan will be conclusive and will bind all parties.

4. LIMITS ON AWARDS UNDER THE PLAN

(a) Number of Shares. The maximum number of shares of Stock that may be delivered in satisfaction of Awards under the Plan is equal to six million (6,000,000) plus an annual increase on each January 1 (beginning January 1, 2008) equal to four percent (4%) of the number of then outstanding shares of Stock. Notwithstanding the preceding sentence, no more than thirty million (30,000,000) shares of Stock may be delivered in satisfaction of ISOs awarded under the Plan. The number of shares of Stock delivered in satisfaction of Awards shall, for purposes of the preceding sentence, be determined net of shares of Stock withheld by the Company in payment of the exercise price of the Award or in satisfaction of tax withholding requirements with respect to the Award. The limit set forth in this Section 4(a) shall be construed to comply with Section 422 of the Code and regulations thereunder. To the extent consistent with the requirements of Section 422 of the Code and regulations thereunder, and with other applicable legal requirements (including applicable stock exchange requirements), Stock issued under awards of an acquired company that are converted, replaced, or adjusted in connection with the acquisition shall not reduce the number of shares available for Awards under the Plan.

(b) **Type of Shares.** Stock delivered by the Company under the Plan may be authorized but unissued Stock or previously issued Stock acquired by the Company. No fractional shares of Stock will be delivered under the Plan.

(c) **Section 162(m) Limits.** The maximum number of shares of Stock for which Stock Options may be granted to any person in any calendar year and the maximum number of shares of Stock subject to SARs granted to any person in any calendar year will each be one million (1,000,000). The maximum number of shares subject to other Awards granted to any person in any calendar year will be one million (1,000,000). The maximum amount payable to any person in any year under Cash Awards will be one million dollars (\$1,000,000). The foregoing provisions will be construed in a manner consistent with Section 162(m).

5. ELIGIBILITY AND PARTICIPATION

The Administrator will select Participants from among those Employees and directors of, and consultants and advisors to, the Company or its Affiliates who, in the opinion of the Administrator, are in a position to make a significant contribution to the success of the Company and its Affiliates. Eligibility for ISOs is limited to employees of the Company or of a “parent corporation” or “subsidiary corporation” of the Company as those terms are defined in Section 424 of the Code.

6. RULES APPLICABLE TO AWARDS

(a) **All Awards**

(1) **Award Provisions.** The Administrator will determine the terms of all Awards, subject to the limitations provided herein. By accepting any Award granted hereunder, the Participant agrees to the terms of the Award and the Plan. Notwithstanding any provision of this Plan to the contrary, awards of an acquired company that are converted, replaced or adjusted in connection with the acquisition may contain terms and conditions that are inconsistent with the terms and conditions specified herein, as determined by the Administrator.

(2) **Term of Plan.** No Awards may be made after June 20, 2016, but previously granted Awards may continue beyond that date in accordance with their terms.

(3) **Transferability.** Neither ISOs nor, except as the Administrator otherwise expressly provides, other Awards may be transferred other than by will or by the laws of descent and distribution, and during a Participant’s lifetime ISOs (and, except as the Administrator otherwise expressly provides, other non-transferable Awards requiring exercise) may be exercised only by the Participant.

(4) **Vesting, Etc.** The Administrator may determine the time or times at which an Award will vest or become exercisable and the terms on which an Award requiring exercise will remain exercisable. Without limiting the foregoing, the Administrator may at any time accelerate the vesting or exercisability of an Award, regardless of any adverse or potentially adverse tax consequences resulting from such acceleration. Unless the Administrator expressly provides otherwise, however, the following rules will apply: immediately upon the cessation of the Participant’s Employment, each Award requiring exercise that is then held by the Participant

or by the Participant's permitted transferees, if any, will cease to be exercisable and will terminate, and all other Awards that are then held by the Participant or by the Participant's permitted transferees, if any, to the extent not already vested will be forfeited, except that:

(A) subject to (B) and (C) below, all Stock Options and SARs held by the Participant or the Participant's permitted transferees, if any, immediately prior to the cessation of the Participant's Employment, to the extent then exercisable, will remain exercisable for the lesser of (i) a period of three months or (ii) the period ending on the latest date on which such Stock Option or SAR could have been exercised without regard to this Section 6(a)(4), and will thereupon terminate;

(B) all Stock Options and SARs held by a Participant or the Participant's permitted transferees, if any, immediately prior to the Participant's death, to the extent then exercisable, will remain exercisable for the lesser of (i) the one year period ending with the first anniversary of the Participant's death or (ii) the period ending on the latest date on which such Stock Option or SAR could have been exercised without regard to this Section 6(a)(4), and will thereupon terminate; and

(C) all Stock Options and SARs held by a Participant or the Participant's permitted transferees, if any, immediately prior to the cessation of the Participant's Employment will immediately terminate upon such cessation if the Administrator in its sole discretion determines that such cessation of Employment has resulted for reasons which cast such discredit on the Participant as to justify immediate termination of the Award.

(5) **Taxes.** The Administrator will make such provision for the withholding of taxes as it deems necessary. The Administrator may, but need not, hold back shares of Stock from an Award or permit a Participant to tender previously owned shares of Stock in satisfaction of tax withholding requirements (but not in excess of the minimum withholding required by law).

(6) **Dividend Equivalents, Etc.** The Administrator may provide for the payment of amounts in lieu of cash dividends or other cash distributions with respect to Stock subject to an Award. Any entitlement to dividend equivalents or similar entitlements shall be established and administered consistent either with exemption from, or compliance with, the requirements of Section 409A to the extent applicable.

(7) **Rights Limited.** Nothing in the Plan will be construed as giving any person the right to continued employment or service with the Company or its Affiliates, or any rights as a stockholder except as to shares of Stock actually issued under the Plan. The loss of existing or potential profit in Awards will not constitute an element of damages in the event of termination of Employment for any reason, even if the termination is in violation of an obligation of the Company or Affiliate to the Participant.

(8) **Section 162(m).** This Section 6(a)(8) applies to any Performance Award intended to qualify as performance-based for the purposes of Section 162(m) other than a Stock Option or SAR. In the case of any Performance Award to which this Section 6(a)(8) applies, the

Plan and such Award will be construed to the maximum extent permitted by law in a manner consistent with qualifying the Award for such exception. With respect to such Performance Awards, the Administrator will pre-establish, in writing, one or more specific Performance Criteria no later than 90 days after the commencement of the period of service to which the performance relates (or at such earlier time as is required to qualify the Award as performance-based under Section 162(m)). Prior to grant, vesting or payment of the Performance Award, as the case may be, the Administrator will certify whether the applicable Performance Criteria have been attained and such determination will be final and conclusive. No Performance Award to which this Section 6(a)(8) applies may be granted after the first meeting of the stockholders of the Company held in 2011 until the listed performance measures set forth in the definition of "Performance Criteria" (as originally approved or as subsequently amended) have been resubmitted to and reapproved by the stockholders of the Company in accordance with the requirements of Section 162(m) of the Code, unless such grant is made contingent upon such approval.

(9) **Duration of Awards.** The latest date on which an Award may be exercised will be the tenth anniversary (fifth anniversary, in the case of an ISO granted to a ten-percent shareholder) of the day immediately preceding the date the Award was granted, or such earlier date as may have been specified by the Administrator at the time the Award was granted.

(b) **Awards Requiring Exercise**

(1) **409A Exemption.** Except as the Administrator otherwise determines, no Award requiring exercise shall have deferral features, or shall be administered in a manner, that would cause such Award to fail to qualify for exemption from Section 409A.

(2) **Time and Manner of Exercise.** Unless the Administrator expressly provides otherwise, an Award requiring exercise by the holder will not be deemed to have been exercised until the Administrator receives a notice of exercise (in form acceptable to the Administrator) signed by the appropriate person and accompanied by any payment required under the Award. If the Award is exercised by any person other than the Participant, the Administrator may require satisfactory evidence that the person exercising the Award has the right to do so.

(3) **Exercise Price.** The exercise price (or the base value from which appreciation is to be measured) of each Award requiring exercise shall be 100% (in the case of an ISO granted to a ten-percent shareholder within the meaning of Section 422(b)(6) of the Code, 110%) of the fair market value of the Stock subject to the Award, determined as of the date of grant, or such higher amount as the Administrator may determine in connection with the grant. Fair market value shall be determined by the Administrator consistent with the requirements of Section 422 and Section 409A, as applicable. No such Award, once granted, may be repriced other than in accordance with the applicable stockholder approval requirements of Nasdaq.

(4) **Payment of Exercise Price.** Where the exercise of an Award is to be accompanied by payment, the Administrator may determine the required or permitted forms of payment, subject to the following: all payments will be by cash or check acceptable to the Administrator, or, if so permitted by the Administrator and if legally permissible, (i) through the

delivery of shares of Stock that have been outstanding for at least six months (unless the Administrator approves a shorter period) and that have a fair market value equal to the exercise price, (ii) by delivery to the Company of a promissory note of the person exercising the Award, payable on such terms as are specified by the Administrator, (iii) through a broker-assisted exercise program acceptable to the Administrator, (iv) by other means acceptable to the Administrator, or (v) by any combination of the foregoing permissible forms of payment. The delivery of shares in payment of the exercise price under clause (a)(i) above may be accomplished either by actual delivery or by constructive delivery through attestation of ownership, subject to such rules as the Administrator may prescribe.

(c) Awards Not Requiring Exercise

Restricted Stock and Unrestricted Stock, whether delivered outright or under Awards of Stock Units or other Awards that do not require exercise, may be made in exchange for such lawful consideration, including services, as the Administrator determines. Any Award resulting in a deferral of compensation subject to Section 409A shall be construed to the maximum extent possible, as determined by the Administrator, consistent with the requirements of Section 409A.

7. EFFECT OF CERTAIN TRANSACTIONS

(a) Mergers, etc. Except as otherwise provided in an Award, the following provisions shall apply in the event of a Covered Transaction:

(1) Assumption or Substitution. If the Covered Transaction is one in which there is an acquiring or surviving entity, the Administrator may provide for the assumption of some or all outstanding Awards or for the grant of new awards in substitution therefor by the acquirer or survivor or an affiliate of the acquirer or survivor.

(2) Cash-Out of Awards. If the Covered Transaction is one in which holders of Stock will receive upon consummation a payment (whether cash, non-cash or a combination of the foregoing), the Administrator may provide for payment (a "cash-out"), with respect to some or all Awards, equal in the case of each affected Award to the excess, if any, of (A) the fair market value of one share of Stock (as determined by the Administrator in its reasonable discretion) times the number of shares of Stock subject to the Award, over (B) the aggregate exercise or purchase price, if any, under the Award (in the case of an SAR, the aggregate base price above which appreciation is measured), in each case on such payment terms (which need not be the same as the terms of payment to holders of Stock) and other terms, and subject to such conditions, as the Administrator determines.

(3) Acceleration of Certain Awards. If the Covered Transaction (whether or not there is an acquiring or surviving entity) is one in which there is no assumption, substitution or cash-out, each Award requiring exercise will become fully exercisable, and the delivery of shares of Stock deliverable under each outstanding Award of Stock Units (including Restricted Stock Units and Performance Awards to the extent consisting of Stock Units) will be accelerated and such shares will be delivered, prior to the Covered Transaction, in each case on a basis that gives the holder of the Award a reasonable opportunity, as determined by the Administrator, following exercise of the Award or the delivery of the shares, as the case may be, to participate

as a stockholder in the Covered Transaction.

(4) Termination of Awards Upon Consummation of Covered Transaction. Each Award (unless assumed pursuant to Section 7(a)(1) above), other than outstanding shares of Restricted Stock (which shall be treated in the same manner as other shares of Stock, subject to Section 7(a)(5) below), will terminate upon consummation of the Covered Transaction.

(5) Additional Limitations. Any share of Stock delivered pursuant to Section 7(a)(2) or Section 7(a)(3) above with respect to an Award may, in the discretion of the Administrator, contain such restrictions, if any, as the Administrator deems appropriate to reflect any performance or other vesting conditions to which the Award was subject. In the case of Restricted Stock, the Administrator may require that any amounts delivered, exchanged or otherwise paid in respect of such Stock in connection with the Covered Transaction be placed in escrow or otherwise made subject to such restrictions as the Administrator deems appropriate to carry out the intent of the Plan.

(b) Change in and Distributions With Respect to Stock

(1) Basic Adjustment Provisions. In the event of a stock dividend, stock split or combination of shares (including a reverse stock split), recapitalization or other change in the Company's capital structure, the Administrator will make appropriate adjustments to the maximum number of shares specified in Section 4(a) that may be delivered under the Plan and to the maximum share limits described in Section 4(c), and will also make appropriate adjustments to the number and kind of shares of stock or securities subject to Awards then outstanding or subsequently granted, any exercise prices relating to Awards and any other provision of Awards affected by such change.

(2) Certain Other Adjustments. The Administrator may also make adjustments of the type described in Section 7(b)(1) above to take into account distributions to stockholders other than those provided for in Section 7(a) and 7(b)(1), or any other event, if the Administrator determines that adjustments are appropriate to avoid distortion in the operation of the Plan and to preserve the value of Awards made hereunder, having due regard for the qualification of ISOs under Section 422 of the Code, the requirements of Section 409A of the Code, and for the performance-based compensation rules of Section 162(m), where applicable.

(3) Continuing Application of Plan Terms. References in the Plan to shares of Stock will be construed to include any stock or securities resulting from an adjustment pursuant to this Section 7.

8. LEGAL CONDITIONS ON DELIVERY OF STOCK

The Company will not be obligated to deliver any shares of Stock pursuant to the Plan or to remove any restriction from shares of Stock previously delivered under the Plan until: (i) the Company is satisfied that all legal matters in connection with the issuance and delivery of such shares have been addressed and resolved; (ii) if the outstanding Stock is at the time of delivery listed on any stock exchange or national market system, the shares to be delivered have been listed or authorized to be listed on such exchange or system upon official notice of issuance; and

(iii) all conditions of the Award have been satisfied or waived. If the sale of Stock has not been registered under the Securities Act of 1933, as amended, the Company may require, as a condition to exercise of the Award, such representations or agreements as counsel for the Company may consider appropriate to avoid violation of such Act. The Company may require that certificates evidencing Stock issued under the Plan bear an appropriate legend reflecting any restriction on transfer applicable to such Stock, and the Company may hold the certificates pending lapse of the applicable restrictions.

9. AMENDMENT AND TERMINATION

The Administrator may at any time or times amend the Plan or any outstanding Award for any purpose which may at the time be permitted by law, and may at any time terminate the Plan as to any future grants of Awards; provided, that except as otherwise expressly provided in the Plan the Administrator may not, without the Participant's consent, alter the terms of an Award so as to affect adversely the Participant's rights under the Award, unless the Administrator expressly reserved the right to do so at the time of the Award. Any amendments to the Plan shall be conditioned upon stockholder approval only to the extent, if any, such approval is required by law (including the Code and applicable stock exchange requirements), as determined by the Administrator.

10. OTHER COMPENSATION ARRANGEMENTS

The existence of the Plan or the grant of any Award will not in any way affect the Company's right to Award a person bonuses or other compensation in addition to Awards under the Plan.

11. MISCELLANEOUS

(a) **Waiver of Jury Trial.** By accepting an Award under the Plan, each Participant waives any right to a trial by jury in any action, proceeding or counterclaim concerning any rights under the Plan and any Award, or under any amendment, waiver, consent, instrument, document or other agreement delivered or which in the future may be delivered in connection therewith, and agrees that any such action, proceedings or counterclaim shall be tried before a court and not before a jury. By accepting an Award under the Plan, each Participant certifies that no officer, representative, or attorney of the Company has represented, expressly or otherwise, that the Company would not, in the event of any action, proceeding or counterclaim, seek to enforce the foregoing waivers.

(b) **Limitation of Liability.** Notwithstanding anything to the contrary in the Plan, neither the Company, any Affiliate, nor the Administrator, nor any person acting on behalf of the Company, any Affiliate, or the Administrator, shall be liable to any Participant or to the estate or beneficiary of any Participant or to any other holder of an Award by reason of any acceleration of income, or any additional tax, asserted by reason of the failure of an Award to satisfy the requirements of Section 422 or Section 409A or by reason of Section 4999 of the Code; provided, that nothing in this Section 11(b) shall limit the ability of the Administrator or the Company to provide by separate express written agreement with a Participant for a gross-up payment or other payment in connection with any such tax or additional tax.

EXHIBIT A

Definition of Terms

The following terms, when used in the Plan, will have the meanings and be subject to the provisions set forth below:

“Administrator”: The Compensation Committee, except that the Compensation Committee may delegate (i) to one or more of its members such of its duties, powers and responsibilities as it may determine; (ii) to one or more officers of the Company the power to grant rights or options to the extent permitted by Section 157(c) of the Delaware General Corporation Law; (iii) to one or more officers of the Company the authority to allocate other Awards among such persons (other than officers of the Company) eligible to receive Awards under the Plan as such delegated officer or officers determine consistent with such delegation; *provided*, that with respect to any delegation described in this clause (iii) the Compensation Committee (or a properly delegated member or members of such Committee) shall have authorized the issuance of a specified number of shares of Stock under such Awards and shall have specified the consideration, if any, to be paid therefor; and (iv) to such Employees or other persons as it determines such ministerial tasks as it deems appropriate. In the event of any delegation described in the preceding sentence, the term “Administrator” shall include the person or persons so delegated to the extent of such delegation.

“Affiliate”: Any corporation or other entity owning, directly or indirectly, 50% or more of the outstanding Stock of the Company, or in which the Company or any such corporation or other entity owns, directly or indirectly, 50% of the outstanding capital stock (determined by aggregate voting rights) or other voting interests. For purposes of determining eligibility for the grant of a Stock Option or SAR by reason of service with an Affiliate, the term Affiliate shall be limited to persons that stand in a relationship to the Company that would result in the Company and such person being treated as one employer under Section 414(b) and Section 414(c) of the Code except that “at least 50%” shall be substituted for “at least 805” under Sections 1563(a)(1), (2), and (3) of the Code and Treas. Reg. Section 1.414(c)-2, all in accordance with the definition of “service recipient” under Section 409A of the Code.

“Award”: Any or a combination of the following:

- (i) Stock Options.
- (ii) SARs.
- (iii) Restricted Stock.
- (iv) Unrestricted Stock.
- (v) Stock Units, including Restricted Stock Units.

(vi) Performance Awards.

(vii) Cash Awards.

(viii) Awards (other than Awards described in (i) through (vii) above) that are convertible into or otherwise based on Stock.

“Board”: The Board of Directors of the Company.

“Cash Award”: An Award denominated in cash.

“Code”: The U.S. Internal Revenue Code of 1986 as from time to time amended and in effect, or any successor statute as from time to time in effect.

“Compensation Committee”: The Compensation and Stock Option Committee of the Board.

“Company”: StemCells, Inc.

“Covered Transaction”: Any of (i) a consolidation, merger, or similar transaction or series of related transactions, including a sale or other disposition of stock, in which the Company is not the surviving corporation or which results in the acquisition of all or substantially all of the Company’s then outstanding common stock by a single person or entity or by a group of persons and/or entities acting in concert, (ii) a sale or transfer of all or substantially all the Company’s assets, or (iii) a dissolution or liquidation of the Company. Where a Covered Transaction involves a tender offer that is reasonably expected to be followed by a merger described in clause (i) (as determined by the Administrator), the Covered Transaction shall be deemed to have occurred upon consummation of the tender offer.

“Employee”: Any person who is employed by the Company or an Affiliate.

“Employment”: A Participant’s employment or other service relationship with the Company and its Affiliates. Employment will be deemed to continue, unless the Administrator expressly provides otherwise, so long as the Participant is employed by, or otherwise is providing services in a capacity described in Section 5 to the Company or its Affiliates. If a Participant’s employment or other service relationship is with an Affiliate and that entity ceases to be an Affiliate, the Participant’s Employment will be deemed to have terminated when the entity ceases to be an Affiliate unless the Participant transfers Employment to the Company or its remaining Affiliates.

“ISO”: A Stock Option intended to be an “incentive stock option” within the meaning of Section 422 of the Code. Each option granted pursuant to the Plan will be treated as providing by its terms that it is to be a non-incentive stock option unless, as of the date of grant, it is expressly designated as an ISO.

“Participant”: A person who is granted an Award under the Plan.

“Performance Award”: An Award subject to Performance Criteria. The Committee in its discretion may grant Performance Awards that are intended to qualify for the performance-based compensation exception under Section 162(m) and Performance Awards that are not intended so to qualify.

“Performance Criteria”: Specified criteria, other than the mere continuation of Employment or the mere passage of time, the satisfaction of which is a condition for the grant, exercisability, vesting or full enjoyment of an Award. For purposes of Awards that are intended to qualify for the performance-based compensation exception under Section 162(m), a Performance Criterion will mean an objectively determinable measure of performance relating to any or any combination of the following (measured either absolutely or by reference to an index or indices and determined either on a consolidated basis or, as the context permits, on a divisional, subsidiary, line of business, project or geographical basis or in combinations thereof): sales; revenues; assets; expenses; earnings before or after deduction for all or any portion of interest, taxes, depreciation, or amortization, whether or not on a continuing operations or an aggregate or per share basis; return on equity, investment, capital or assets; one or more operating ratios; borrowing levels, leverage ratios or credit rating; market share; capital expenditures; cash flow; stock price; stockholder return; sales of particular products or services; customer acquisition or retention; acquisitions and divestitures (in whole or in part); joint ventures and strategic alliances; spin-offs, split-ups and the like; reorganizations; or recapitalizations, restructurings, financings (issuance of debt or equity) or refinancings. A Performance Criterion and any targets with respect thereto determined by the Administrator need not be based upon an increase, a positive or improved result or avoidance of loss. To the extent consistent with the requirements for satisfying the performance-based compensation exception under Section 162(m), the Administrator may provide in the case of any Award intended to qualify for such exception that one or more of the Performance Criteria applicable to such Award will be adjusted in an objectively determinable manner to reflect events (for example, but without limitation, acquisitions or dispositions) occurring during the performance period that affect the applicable Performance Criterion or Criteria.

“Plan”: The StemCells, Inc. 2006 Incentive Plan as from time to time amended and in effect.

“Restricted Stock”: Stock subject to restrictions requiring that it be redelivered or offered for sale to the Company if specified conditions are not satisfied.

“Restricted Stock Unit”: A Stock Unit that is, or as to which the delivery of Stock or cash in lieu of Stock is, subject to the satisfaction of specified performance or other vesting conditions.

“Section 162(m)”: Section 162(m) of the Code.

“SAR”: A right entitling the holder upon exercise to receive an amount (payable in shares of Stock of equivalent value or, at the election of the Administrator, in cash or a

combination of shares of Stock and cash) equal to the excess of the fair market value of the shares of Stock subject to the right over the fair market value of such shares at the date of grant.

“Stock”: Common Stock of the Company, par value \$ 0.01 per share.

“Stock Option”: An option entitling the holder to acquire shares of Stock upon payment of the exercise price.

“Stock Unit”: An unfunded and unsecured promise, denominated in shares of Stock, to deliver Stock or cash measured by the value of Stock in the future.

“Unrestricted Stock”: Stock not subject to any restrictions under the terms of the Award.

[ROPES & GRAY LLP LETTERHEAD]

July 20, 2007

StemCells, Inc.
3155 Porter Drive
Palo Alto, CA 94304

Ladies and Gentlemen:

This opinion is furnished to you in connection with a registration statement on Form S-8 (the "Registration Statement"), filed with the Securities and Exchange Commission under the Securities Act of 1933, as amended, for the registration of 9,000,000 shares of Common Stock, \$.01 par value (the "Shares"), of StemCells, Inc., a Delaware corporation (the "Company"). The Shares are issuable under the Company's Amended and Restated 2006 Equity Incentive Plan (the "Plan").

We are familiar with the actions taken by the Company in connection with the adoption of the Plan. For purposes of our opinion, we have examined and relied upon such documents, records, certificates and other instruments as we have deemed necessary. The opinions expressed below are limited to the Delaware General Corporation Law, including the applicable provisions of the Delaware Constitution and the reported cases interpreting those laws.

Based on the foregoing, we are of the opinion that the Shares have been duly authorized and, when the Shares have been issued and sold in accordance with the terms of the Plan, the Shares will be validly issued, fully paid and nonassessable.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement. Our consent shall not be deemed an admission that we are experts whose consent is required under Section 7 of the Securities Act of 1933.

It is understood that this opinion is to be used only in connection with the offer and sale of Shares while the Registration Statement is in effect.

Very truly yours,

/s/ Ropes & Gray LLP

Ropes & Gray LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-8 pertaining to the StemCells, Inc. Amended and Restated 2006 Equity Incentive Plan, of our reports dated March 1, 2007 with respect to the financial statements (which report expressed an unqualified opinion and contains an explanatory paragraph about StemCells, Inc.'s adoption of Statement No. 123R, "Share-Based Payment") and management's assessment of the effectiveness of internal control over financial reporting (which report expressed an unqualified opinion on management's assessment of, and an unqualified opinion on the effective operation of, internal control over financial reporting) of StemCells, Inc. for the year ended December 31, 2006 contained in the Annual Report of StemCells, Inc. on Form 10-K filed with the Securities and Exchange Commission on March 9, 2007.

/s/ Grant Thornton LLP
San Francisco, California
July 19, 2007