Neuralstem, Inc. Form 424B3 October 21, 2010

Filed Pursuant to Rule 424(b)(3) Registration No. 333-169847

PROSPECTUS

NEURALSTEM, INC.

300,000 Shares of Common Stock

This prospectus relates to the resale of up to 300,000 shares of our common stock being offered by the selling shareholders listed on page 3. We will not receive any proceeds from the sale of the shares of common stock by the selling shareholders.

Our shares of common stock are quoted on the NYSE: AMEX under the symbol "CUR." On October 4 2010, the last reported sales price of our common stock was, was \$2.31

Our principal executive offices are located at 9700 Great Seneca Highway, Rockville, MD, telephone number 301-366-4841.

Investing in our common stock involves a high degree of risk. You are urged to read the section entitled "Risk Factors" beginning on page 3; of this prospectus, which describes specific risks and other information that should be considered before you make an investment decision.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED THESE SECURITIES, OR DETERMINED IF THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The Date of this Prospectus is October 18, 2010

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THE COMPANY

Overview

We are focused on the development and commercialization of treatments based on transplanting human neural stem cells and small molecule compounds.

We have developed and maintain a portfolio of patents and patent applications that form the proprietary base for our research and development efforts in the area of neural stem cell research. We own or exclusively license fourteen (14) issued patents and twenty-two (22) patent pending applications in the field of regenerative medicine and related technologies. We believe our technology base, in combination with our know-how, and collaborative projects with major research institutions, provide a competitive advantage and will facilitate the development and commercialization of products for use in the treatment of a wide array of neurodegenerative conditions and in regenerative repair of acute disease.

Regenerative medicine is a young and emerging field. Regenerative medicine is the process of creating living, functional tissues to repair or replace tissue or organ function lost due to age, disease, damage, or congenital defects. There can be no assurances that our intellectual property portfolio will ultimately produce viable commercialized products and processes. Even if we are able to produce a commercially viable product, there are strong competitors in this field and our products may not be able to successfully compete against them.

All of our research efforts to date are at the pre-clinical or clinical stage of development. We are focused on leveraging our key assets, including our intellectual property, our scientific team and our facilities, to advance our technologies. In addition, we are pursuing strategic collaborations with members of academia.

Clinical Trials

On December 18, 2008 we filed our first Investigational New Drug Application ("IND") with the U.S. Food and Drug Administration ("FDA") to begin a clinical trial to treat Amyotrophic Lateral Sclerosis ("ALS" or "Lou Gehrig's disease"). On September 21, 2009, the FDA approved our IND. The first patient in our study was dosed on January 21, 2010 at Emory University in Atlanta Georgia. In May of 2010, we announced that, after reviewing the safety data from the first cohort of three patients, the Safety Monitoring Board has approved moving to the next cohort and transplantation of the fourth patient. The first cohort of patients received five injections of the Company's spinal cord stem cells on one side of the spinal cord. The second cohort of three patients will receive ten injections, five on each side of the cord. The trial will ultimately consist of up to 18 ALS patients, who will be examined at regular intervals post-surgery, with final review of the data to come six months after the last patient is treated. To date, we have treated 6 patients. It is still too early in the trials to make any determination as to its level of success, if any.

On August 22, 2010, we filed our second IND with the FDA. The IND is being filed in connection with our proposed Phase I clinical trials for Chronic Spinal Cord injury. We anticipate the study will be a multi-site study in the U.S.

Technology

Stem Cells

Our technology enables the isolation and large-scale expansion of human neural stem cells from all areas of the developing human brain and spinal cord, thus enabling the generation of physiologically relevant human neurons of all types. Our two issued core patents entitled: (i) Isolation, Propagation, and Directed Differentiation of Stem Cells from Embryonic and Adult Central Nervous System of Mammals; and (ii) In Vitro Generation of Differentiated Neurons from Cultures of Mammalian Multipotential CNS Stem Cell contain claims which cover the process of

deriving the cells as well as the cells created from this process.

What differentiates our stem cell technology from others is that our patented processes do not require us to direct our cells towards a certain fate by adding specific growth factors. Our cells actually "become" the type of cell they are fated to be. This process and the resulting cells comprise a technology platform that allows for the efficient isolation and production, in commercially reasonable quantities, of neural stem cells from the human brain and spinal cord.

To date we have focused our efforts on applications involving spinal cord stem cells. We believe we have established "proof of principle" for two important spinal cord applications: ALS, or Lou Gehrig's disease, and Ischemic Spastic Paraplegia (a painful form of spasticity that may arise as a complication of surgery to repair aortic aneurysms). Of these applications, we have commenced Phase I trials with regard to ALS.

We intend to treat both chronic and acute spinal cord injury with the same spinal cord stem cells, utilizing the same injection devices we are using for ALS. The treatment for spinal cord injury will, however, likely only involve a few injections as opposed to the fifteen injection dosage that is ultimately planned for the ALS trial. We, therefore, add to our knowledge about the surgical route of entry for both the ALS patients and the spinal cord injury patients with each patient we treat in the ALS trial.

Small-molecule Compounds

We have performed tests on cultured neural stem cells as well as in animal models in order to validate the performance of small molecule compounds for hippocampal neurogenesis. As a result of those tests, we feel that our small molecule compound may have an application with regard to the treatment of depression. We expect to file an IND to commence human safety trials of our lead small molecule compound to treat major depression in early 2011. In anticipation of filing the IND, we have contracted for a production run of our compound using Good Manufacturing Practice ("GMP") methods which will be large enough to complete safety testing and Phase I clinical trials.

In July of 2009, the U.S. Patent and Trademark Office ("USPTO") issued the patent covered by patent application 12/049,922, entitled "Use of Fused Nicotinamides to Promote Neurogenesis," which claims four chemical entities and any pharmaceutical composition including them.

Research

We have devoted substantial resources to our research programs in order to isolate and develop a series of neural stem cell banks that we believe can serve as a basis for our therapeutic products. Our efforts to date have been directed at methods to identify, isolate and culture large varieties of stem cells of the human nervous system, and to develop therapies utilizing these stem cells. This research is conducted internally, through the use of third party laboratories and consulting companies under our direct supervision, and through collaboration with academic institutes.

Operating Strategy

We employ an outsourcing strategy where we outsource all of our Good Laboratory Practices ("GLP") preclinical development activities and GMP manufacturing and clinical development activities to contract research organizations ("CRO") and contract manufacturing organizations ("CMO") as well as all non critical corporate functions. Manufacturing is also outsourced to organizations with approved facilities and manufacturing practices. This outsource model allows us to better manage cash on hand and eliminates non-vital expenditures. It also allows for us to operate with relatively fewer employees and lower fixed costs than that required by our competitors.

Employees

As of June 30, 2010, we had 9 full-time employees and 11 full time independent contractors. Of these employees, 4 work on research and development and 5 in administration. We also use the services of numerous outside consultants in business and scientific matters.

Corporate Information

We were incorporated in 1997 in the state of Maryland and re-incorporated in the state of Delaware in 2001. Our principal executive offices are located at 9700 Great Seneca Highway, Rockville, MD, and our telephone number at that address is 301-366-4841.

RISK FACTORS

An investment in our securities involves a high degree of risk. The prospectus supplement applicable to each offering of our securities will contain a discussion of the risks applicable to an investment in our securities. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed under the

heading "Risk Factors" in the applicable prospectus supplement, together with all of the other information contained or incorporated by reference in the prospectus supplement or appearing or incorporated by reference in this prospectus. You should also consider the risks, uncertainties and assumptions discussed under Item 1A, "Risk Factors," in our Annual Report on Form 10-K for the fiscal year ended December 31, 2009 (as updated in our Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2010) which are incorporated herein by reference, and may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future and any prospectus supplement related to a particular offering. 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.

FORWARD-LOOKING STATEMENTS

This prospectus and the registration statement of which it forms a part, any prospectus supplement, any related issuer free writing prospectus and the documents incorporated by reference into these documents contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. Forward-looking statements deal with our current plans, intentions, beliefs and expectations and statements of future economic performance. Statements containing terms such as "believe," "do not believe," "plan," "expect," "intend," "estimate," "anticipate" and other phrases of similar mean considered to contain uncertainty and are forward-looking statements. In addition, from time to time we or our representatives have made or will make forward-looking statements orally or in writing. Furthermore, such forward-looking statements may be included in various filings that we make with the SEC, or press releases or oral statements made by or with the approval of one of our authorized executive officers. These forward-looking statements are subject to certain known and unknown risks and uncertainties, as well as assumptions that could cause actual results to differ materially from those reflected in these forward-looking statements. Factors that might cause actual results to differ include, but are not limited to, those set forth under Item 1A, "Risk Factors," and Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," in our most recent Annual Report on Form 10-K, the corresponding sections in our most recent Quarterly Report on Form 10-Q and in our future filings made with the SEC. Readers are cautioned not to place undue reliance on any forward-looking statements contained in this prospectus, any prospectus supplement or any related issuer free writing prospectus, which reflect management's opinions only as of their respective dates. Except as required by law, we undertake no obligation to revise or publicly release the results of any revisions to any forward-looking statements. You are advised, however, to consult any additional disclosures we have made or will make in our reports to the SEC on Forms 10-K, 10-Q and 8-K, and any amendments thereto. All subsequent written and oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the cautionary statements contained in this prospectus, any prospectus supplement or any related issuer free writing prospectus.

DIVIDEND POLICY

We have never paid cash dividends on our common stock. Moreover, we do not anticipate paying periodic cash dividends on our common stock for the foreseeable future. We intend to use all available cash and liquid assets in the operation and growth of our business. Any future determination about the payment of dividends will be made at the discretion of our board of directors and will depend upon our earnings, if any, capital requirements, operating and financial conditions and on such other factors as our board of directors deems relevant.

USE OF PROCEEDS

This prospectus relates to shares of our common stock that may be offered and sold from time to time by the selling shareholders. There will be no proceeds to us from the sale of shares of common stock in this offering. In the event the warrants held by the selling shareholders are exercised for cash, we will receive approximately \$1,027,000. We will use the proceeds received from the exercise of warrants, if any, for working capital.

DETERMINATION OF OFFERING PRICE

This offering is being made solely to allow the selling shareholders to offer and sell the securities to the public. The selling shareholders may offer for resale some or all of their securities at the time and price that they choose pursuant to the Plan of Distribution. On any given day, the price per Common Share is likely to be based on the market price for our Common Shares, as quoted on the American Stock Exchange.

SELLING SHAREHOLDERS

This prospectus relates to the offering and sale, from time to time, of up to 300,000 common shares issuable upon the exercise of warrants held by the selling shareholders ("Selling Shareholders"). The warrants were issued to the Selling Shareholder as compensation for services and reimbursements of expenses. The Selling Shareholders may exercise their warrants at any time in their sole discretion. All of the Selling Shareholders named below acquired their warrants directly from us in private transactions.

Set forth below is information, to the extent known to us, setting forth the name of each Selling Shareholder and the amount and percentage of common stock owned by each (including shares that can be acquired on the exercise of outstanding warrants) prior to the offering, the shares to be sold in the offering, and the amount and percentage of Common Stock to be owned by each (including shares that can be acquired on the exercise of outstanding warrants) after the offering assuming all shares are sold. The footnotes provide information about persons who have voting and dispositive power for the Selling Shareholders and about transactions between the Selling Shareholders and the Company.

The Selling Shareholders may sell all or some of the shares of common stock they are offering, and may sell shares of our common stock otherwise than pursuant to this prospectus. The table below assumes that each selling stockholder exercises all of its warrants and sells all of the shares issued upon exercise thereof, and that each selling stockholder sells all of the shares offered by it in offerings pursuant to this prospectus, and does not acquire any additional shares. We are unable to determine the exact number of shares that will actually be sold or when or if these sales will occur.

The Selling Shareholders may sell all, some or none of their shares in this offering. See "Plan of Distribution." The total number of common shares sold under this prospectus may be adjusted to reflect adjustments due to stock dividends, stock distributions, splits, combinations, recapitalizations or the triggering anti-dilution protective provisions with regard to the common stock and warrants.

Unless otherwise stated below in the footnotes, to our knowledge, no Selling Stockholder nor any affiliate of such stockholder: (i) has held any position or office with, been employed by or otherwise has had any material relationship with us or our affiliates during the three years prior to the date of this prospectus; or (ii) is a broker-dealer, or an affiliate of a broker-dealer.

The Selling Shareholders may sell all or some of the shares of common stock they are offering, and may sell shares of our common stock otherwise than pursuant to this prospectus. The table below assumes that each Selling Shareholder exercises all of its warrants and sells all of the shares issued upon exercise thereof, and that each selling stockholder sells all of the shares offered by it in offerings pursuant to this prospectus, and does not acquire any additional shares. We are unable to determine the exact number of shares that will actually be sold or when or if these sales will occur.

We may amend or supplement this prospectus from time to time in the future to update or change this list and shares which may be resold.

| | Common Shares Beneficially Owned Before Sale (1) | | Common Shares Owned After Sale (2) | | |
|--------------------------------------|---|------------|---------------------------------------|---------|---------------|
| | Securities Owned | % of class | Shares being registered | Amount | % of Class |
| Market Development Consulting Group, | | | Č | | |
| Inc. — 3(i) | 715,000 3(ii) | 1.55% | 175,000 | 540,000 | 1.17% |
| Susan Rouch | 25,000 4 | * | 25,000 | _ | * |
| Ridaa H. Murad | 100,000 5 | * | 100,000 | - | * |
| Total | 840,000 | 1.82% | 300,000 | 540,000 | 1.17% |

- * Less Than 1%
- (1) Pursuant to Rules 13d-3 and 13d-5 of the Exchange Act, beneficial ownership includes any common shares as to which a shareholder has sole or shared voting power or investment power, and also any common shares which the shareholder has the right to acquire within 60 days, including upon exercise of common shares purchase options or warrants. There were 46,182,178 common shares outstanding as of October 5, 2010.

- (2) Assumes the sale of all common shares registered pursuant to this registration statement.
- (3)(i) David E. Castaneda has voting and dispositive power with respect to the securities to be offered for resale. (ii) Includes: (a) 175,000 common share underlying warrants issued as compensation for services which are being registered, (b) 140,000 common shares which were previously registered, and (c) 400,000 common shares underlying warrants issued as compensation for services which were previously registered. The 175,000 warrants of which we are registering the underlying shares have an exercise price of \$3.17 a term of 10 years and are substantially similar to the consultant warrant issued on January 8, 2010.
- (4) The 25,000 warrants of which we are registering the underlying shares have an exercise price of \$3.17 a term of 10 years and are substantially similar to the consultant warrant issued on January 8, 2010.
- (5) Includes 100,000 shares underlying warrants issued as compensation for services. The warrants have an exercise price of \$2.44 (issued on October 1, 2010), and a term of 10 years from the issuance date.

PLAN OF DISTRIBUTION

Each Selling Shareholder of the common stock and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their shares of common stock on the NYSE: AMEX or any stock exchange, market or trading facility on which the shares are traded or in private transactions. These sales may be at fixed or negotiated prices. A Selling Shareholder may use any one or more of the following methods when selling shares:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- •block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
 - purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
 - an exchange distribution in accordance with the rules of the applicable exchange;
 - privately negotiated transactions;
- settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;
- broker-dealers may agree with the Selling Shareholder to sell a specified number of such shares at a stipulated price per share;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise:
 - a combination of any such methods of sale; or
 - any other method permitted pursuant to applicable law.

The Selling Shareholders may also sell shares under Rule 144 under the Securities Act of 1933, as amended (the "Securities Act"), if available, rather than under this prospectus.

Broker-dealers engaged by a Selling Shareholder may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Shareholder (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this Prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rules.

In connection with the sale of the common stock or interests therein, the Selling Shareholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The Selling Shareholders may also sell shares of the common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The Selling Shareholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Shareholders and any broker-dealers or agents that are involved in selling the shares may be deemed to be "underwriters" within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each Selling Shareholder has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the Common Stock.

The Company is required to pay certain fees and expenses incurred by the Company incident to the registration of the shares. The Company has agreed to indemnify the Selling Shareholder against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

Because Selling Shareholders may be deemed to be "underwriters" within the meaning of the Securities Act, they will be subject to the prospectus delivery requirements of the Securities Act including Rule 172 thereunder. In addition, any securities covered by this prospectus which qualify for sale pursuant to Rule 144 under the Securities Act may be sold under Rule 144 rather than under this prospectus. There is no underwriter or coordinating broker acting in connection with the proposed sale of the resale shares by the Selling Shareholders.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale shares may not simultaneously engage in market making activities with respect to the common stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the Selling Shareholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of shares of the common stock by the Selling Stockholders or any other person. We will make copies of this prospectus available to the Selling Stockholders and have informed them of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

LEGAL MATTERS

The validity of the securities offered by this prospectus will be passed upon by Silvestre Law Group, P.C., Westlake Village, California.

EXPERTS

Stegman & Company, our independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the years ended December 31, 2009 and 2008, as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are, and audited financial statements to be included in subsequently filed documents will be, incorporated by reference in reliance on Stegman & Company's report (to the extent covered by consents filed with the Securities and Exchange Commission), given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement to register the securities offered by this prospectus under the Securities Act. This prospectus is part of that registration statement, but omits certain information contained in the registration statement, as permitted by SEC rules. For further information with respect to our Company and this offering, reference is made to the registration statement and the exhibits and any schedules filed with the registration statement. Statements contained in this prospectus as to the contents of any document referred to are not necessarily complete and in each instance, if the document is filed as an exhibit, reference is made to the copy of the document filed as an exhibit to the registration statement, each statement being qualified in all respects by that reference. You may obtain copies of the registration statement, including exhibits, as noted in the paragraph below or by writing or telephoning us at:

NEURALSTEM, INC

9700 Great Seneca Highway, Rockville, Maryland 20850 Attn: Chief Financial Officer Tel: (301) 366-4841

We file annual, quarterly and other reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at http://www.sec.gov. You may also read and copy any document we file at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the Public Reference Room. You can also inspect reports, proxy statements and other information about us at the offices of the National Association of Securities Dealers, Reports Section, 1735 K Street, N.W., Washington, D.C. 20006.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

We incorporate information into this prospectus by reference, which means that we disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus, except for any such information superseded by information contained in later-filed documents or directly in this prospectus. This prospectus incorporates by reference the documents set forth below that we have previously filed with the SEC (excluding those portions of any Form 8-K that are not deemed "filed" pursuant to the General Instructions of Form 8-K). These documents contain important information about us and our financial condition.

We incorporate by reference into this prospectus supplement the information contained in the documents listed below, which is considered to be a part of this prospectus supplement:

•Our Annual Report on Form 10-K and 10-K/A filed with the Commission on March 31, 2010, for the year ended December 31, 2009 and as amended on October 5 2010, respectively;

- Our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2010, filed on May 17, 2010;
- Our Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2010, filed on August 16, 2010;
- •Our Current Reports on Form 8-K filed on June 11, 2010, June 29, 2010, and July 14, 2010 (excluding any information furnished in such reports under Item 2.02, Item 7.01 or Item 9.01);
- •Our Definitive Proxy Statement on Form 14A for our 2010 Annual Meeting of Stockholders, filed with the SEC on March 26, 2010; and
- •The description of our common stock contained in our Registration Statement on Form SB-2 (Registration No. 333-142451), as amended (the "Registration Statement"), filed under the Securities Act of 1933, as amended, with the Commission on April 30, 2007 and declared effective May 4, 2007.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of this offering, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

We will provide without charge to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request, a copy of any or all documents that are incorporated by reference into this prospectus, but not delivered with the prospectus, other than exhibits to such documents unless such exhibits are specifically incorporated by reference into the documents that this prospectus incorporates. You should direct written requests to: NEURALSTEM, INC, 9700 Great Seneca Highway, Rockville, Maryland 20850 Attn: Chief Financial Officer Tel: (301) 366-4841