Neuralstem, Inc.
Form 10-K
March 16, 2011

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

FORM 10-K

(Mark One)

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2010.

or

¨ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to .

Commission File Number 000-1357459

NEURALSTEM, INC.
(Exact name of registrant as specified in its charter)

Delaware	52-2007292
State or other jurisdiction of incorporation or organization	(I.R.S. Employer Identification No.)
9700 Great Seneca Highway Rockville, MD	20850
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code (301)-366-4841

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common stock, $0.01 par value	NYSE Amex

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. ¨ Yes x No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. ¨Yes x No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. x Yes ¨ No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). ¨ Yes ¨ No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ¨

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ¨	Accelerated filer ¨	Non-accelerated filer ¨ (Do not check if a smaller reporting company)	Smaller reporting company x

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). ¨ Yes x No

The aggregate market value of the voting and non-voting common equity held by non-affiliates computed by reference to the price at which the common equity was last sold as of the last business day of the registrant's most recently completed second fiscal quarter based upon the closing price of the common stock as reported by NYSE Amex on such date, was approximately $106,921,703.

The number of shares outstanding of Registrant's common stock, $0.01 par value at March 1, 2011 was 48,366,304.

DOCUMENTS INCORPORATED BY REFERENCE

None.

SUBSEQUENT EVENTS

On March 1, 2011 Neuralstem, Inc. announced that the first subject was dosed the day before in a Phase Ia trial to evaluate the safety of its drug, NSI-189, which is being developed for the treatment of major depressive disorder and other psychiatric indications. NSI-189 is the lead compound in Neuralstem's neurogenerative small molecule drug platform. This phase of the trial is in healthy volunteers and seeks to determine the maximum tolerated single dose.

On February 15, 2011 Neuralstem, Inc. announced the appointment of business leader Stanley I. Westreich to its Board of Directors. With his appointment the company's board is now comprised of a majority of independent directors. Mr. Westreich served as Director and Member of the Finance & Trust Oversight Committee of Capital One Financial Corp. and was a Director of Capital One Bank (USA) from 1994 through 2010. Mr. Westreich also served as Chairman of its Compensation Committee from March 1995 through April 2005, and continued as Member until 2009. Mr. Westreich founded and served as president of Westfield Realty, Inc., a Washington, D.C. area commercial real estate finance, development and construction company, from 1965 to 2005. He holds a Juris Doctorate from New York University and a Bachelors of Business Administration from The University of Miami.

On February 10, 2011 Neuralstem, Inc updated the progress of its ongoing Phase I human clinical trial of the company's spinal cord stem cells in the treatment of ALS (amyotrophic lateral sclerosis, or Lou Gehrig's disease) at

Emory University in Atlanta, Georgia. The company announced that, after reviewing the safety data from the first nine patients, the trial's Safety Monitoring Board unanimously approved moving to the last group of ALS patients in this part of the safety trial. These next three patients, all of whom are ambulatory, will each receive ten injections, bilaterally, in the lumbar spinal cord. After this cohort, the FDA will review the trial data to date before approving it to move into the final cohort of patients, who will receive injections in the cervical region of the spinal cord.

On February 9, 2011, Neuralstem, Inc. announced that the U.S. Food and Drug Administration's Office of Orphan Products Development has granted it orphan drug designation for the treatment of Amyotrophic Lateral Sclerosis (ALS) with its human spinal cord derived neural stem cells (NSI-566RSC), currently in a Phase I safety study to evaluate the safety of the product and the surgical route of administration in a wide range of ALS patients. In addition to providing a seven-year term of market exclusivity for our stem cells for ALS upon FDA approval, Orphan Drug Designation also positions Neuralstem to take advantage of certain financial and regulatory benefits, including government grants for conducting clinical trials, waiver of FDA user fees for the submission of a Biologics License Application for NSI-566RSC, and certain tax credits.

On January 28, 2011 Neuralstem, Inc. announced that it has reached a settlement with ReNeuron, Ltd. ending litigation between the parties. The confidential settlement agreement resolves all claims asserted by Neuralstem against ReNeuron in Neuralstem, Inc. v. ReNeuron, Ltd., Case No. CV 08-02168 R (AGRx), which was pending in the United States District Court for the Central District of California. Although the contents of the agreement have not been disclosed, ReNeuron has agreed to immediately compensate Neuralstem, as well as to make future milestone and royalty payments to Neuralstem based on ReNeuron's development of certain products.

During the first quarter of 2006, we issued a total of 2,019,231 Series A warrants in connection with a private placement of our securities. The Series A warrants expired on February 22, 2011. The warrants had an exercise price of $1.25. As a result, Series A warrant holders exercised 583,005 of these warrants in 2010 with proceeds of $728,756 and 1,468,775 warrants in 2011 with proceeds of $1,826,346. We issued a total of 2,051,780 new common shares as a result of these exercises.

NEURALSTEM, INC

FORM 10-K

FOR THE YEAR ENDED DECEMBER 31, 2010

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PART I

We urge you to read this entire Annual Report on Form 10-K, including the" Risk Factors" section, the financial statements and related notes included herein. As used in this Annual Report, unless context otherwise requires, the words "we," "us,""our," "the Company," "Neuralstem" and "Registrant" refer to Neuralstem, Inc. Also, any reference to "com share" or "common stock," refers to our $.01 par value common stock.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements contained in this Annual Report on Form 10-K constitute "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. All statements included in this Annual Report, including those related to our cash, liquidity, resources and our anticipated cash expenditures, as well as any statements other than statements of historical fact, regarding our strategy, future operations, financial position, projected costs, prospects, plans and objectives are forward-looking statements. These forward-looking statements are derived, in part, from various assumptions and analyses we have made in the context of our current business plan and information currently available to us and in light of our experience and perceptions of historical trends, current conditions and expected future developments and other factors we believe are appropriate in the circumstances. You can generally identify forward looking statements through words and phrases such as "believe", "expect", "seek", "estimate", "anticipate", "intend", "plan", "budget", "project", "may likely result", "may be", "may conti similar expressions, although not all forward-looking statements contain these identifying words. We cannot guarantee future results, levels of activity, performance or achievements, and you should not place undue reliance on our forward-looking statements.

Our actual results could differ materially from those anticipated in these forward-looking statements as a result of various factors, including the risks described in Part I, Item 1A, "Risk Factors" and elsewhere in this Annual Report. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or strategic investments. In addition, any forward-looking statement represents our expectation only as of the day this Annual Report was first filed with the Securities and Exchange Commission ("SEC") and should not be relied on as representing our expectations as of any subsequent date. While we may elect to update forward-looking statements at some point in the future, we specifically disclaim any obligation to do so, even if our expectations change.

When reading any forward-looking statement, you should remain mindful that actual results or developments may vary substantially from those expressed in or implied by such statement for a number of reasons or factors, including but not limited to:

- the success of our research and development activities, the development of a viable commercial product, and the speed with which regulatory authorizations and product launches may be achieved;
- whether or not a market for our product develops, and, if a market develops, the rate at which it develops;
- our ability to successfully sell or license our products if a market develops;
- our ability to attract and retain qualified personnel to implement our business plan and corporate growth strategies;
- our ability to develop sales, marketing, and distribution capabilities;
- our ability to obtain reimbursement from third party payers for our proposed products if they are developed;

- the accuracy of our estimates and projections;
- our ability to secure additional financing to fund our short-term and long-term financial needs;
- changes in our business plan and corporate strategies; and
- other risks and uncertainties discussed in greater detail in the section captioned “Risk Factors.”

Each forward-looking statement should be read in context with and in understanding of the various other disclosures concerning our company and our business made elsewhere in this Annual Report as well as our public filings with the SEC. You should not place undue reliance on any forward-looking statement. We are not obligated to update or revise any forward-looking statements contained in this Annual Report or any other filing to reflect new events or circumstances unless and to the extent required by applicable law.

ITEM 1. BUSINESS

Overview

We are focused on the development and commercialization of treatments for central nervous system disease based on transplanting human neural stem cells and small molecule drugs. We are headquartered in Rockville, Maryland.

We have developed and maintain a portfolio of patents and patent applications that form the proprietary base of our research and development efforts in the areas of neural stem cell research, small molecule research, and related technologies. We believe our patented technology, in combination with our know-how, and collaborative projects with major research institutions, provide a competitive advantage and will enable us to develop and commercialize products for use in treatment of a number of neurodegenerative conditions and in regenerative repair of acute disease.

Regenerative medicine is a young and emerging field. 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 product may not be able to successfully compete against them.

The Field of Regenerative Medicine

The emerging field of treatment called "regenerative medicine" or "cell therapy" refers to treatments that are founded on the concept of producing new cells to replace malfunctioning or dead cells as a way to treat disease and injury. Many significant and currently untreatable human diseases arise from the loss or malfunction of specific cell types in the body. Our focus is the development of effective methods to generate replacement cells from neural stem cells. We believe that replacing damaged or malfunctioning or dead neural cells with fully functional ones may be a useful therapeutic strategy in treating many diseases and conditions of the central nervous system (“CNS”) including: Alzheimer's disease, Parkinson's disease, Multiple Sclerosis, ALS, depression, and injuries to the spinal cord.

Stem Cell Therapy Background

Cells maintain normal physiological function in healthy individuals by secreting or metabolizing substances, such as sugars, amino acids, neurotransmitters and hormones, which are essential to life. When cells are damaged or destroyed, they no longer produce, metabolize or accurately regulate those substances. Cell loss or impaired cellular functions are leading causes of degenerative diseases, and some of the specific substances or proteins that are deficient in some of these diseases have been identified. Although administering these substances or proteins has some advantages over traditional pharmaceuticals, such as specificity, there is no existing technology that can deliver them precisely to the sites of action, under the appropriate physiological regulation, in the appropriate quantity, nor for the duration required to cure the degenerative condition. Cells, however, may do all this naturally. Thus, where failing cells are no longer producing needed substances or proteins or where there has been irreversible tissue damage or organ failure, transplantation of stem or progenitor cells may enable the generation of new functional cells, thus potentially restoring organ function and the patient's health.

Stem cells have two defining characteristics: (i) they produce mature cells which make up particular organs; and (ii) they self renew — that is, some of the cells developed from stem cells are themselves new stem cells, thus permitting the process to continue again and again. Stem cells are known to exist for a number of systems of the human body, including the blood and immune system, the central and peripheral nervous systems (including the brain), the skin, bone, and even hair. They are thought to exist for many others, including the liver and pancreas endocrine systems,

gut, muscle, and heart. Stem cells are responsible for organ regeneration during normal cell replacement and, to a greater or lesser extent, after injury.

Stem cells are rare and only available in limited supply, whether from the patients themselves or from donors. Also, stem cells can often be obtained only through significant surgical procedures. Therefore, in order to develop stem cell therapeutics, three key challenges must be overcome: (i) identification of stem or progenitor cells of a particular organ and testing them for therapeutic potential; (ii) creation of processes to enable use of these rare cells in clinical applications, such as expanding and banking them in sufficient quantities to transplant into multiple patients; and (iii) demonstration of the safety and efficacy of these potential therapeutics in human clinical trials.

The Potential of Our Tissue-Derived Stem Cell-Based Therapy

We believe that, if successfully developed, stem cell therapeutics have the potential to provide a broad therapeutic approach comparable in importance to traditional pharmaceuticals and genetically engineered biologics. With respect to the human neural stem cells, we have developed proprietary and reproducible processes to identify, isolate, expand, and control cell differentiation in mature functioning human neurons1 and glia2 and bank human neural stem cells derived from brain tissue. Because the cells are normal human neural stem cells, they may be better suited for transplantation and may provide a safer and more effective alternative to therapies that are based on cells derived from cancer cells, animal derived cells or cells derived from an unpurified mix of many different cell types.

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1 Neurons are a major class of cells in the nervous system. Neurons are sometimes called nerve cells, though this term is technically imprecise since many neurons do not form nerves. In vertebrates, they are found in the brain, the spinal cord and in the nerves and ganglia of the peripheral nervous system, and their primary role is to process and transmit neural information. One important characteristic of neurons is that they have excitable membranes which allow them to generate and propagate electrical signals.

2 Glia cells, commonly called neuroglia or simply glia, are non-neuronal cells that provide support and nutrition, maintain homeostasis, form myelin, and participate in signal transmission in the nervous system. In the human brain, glia are estimated to outnumber neurons by as much as 50 to 1.

Potential Markets

We believe the potential markets for regenerative medicine based on our technologies are large. The table below summarizes the potential United States patient populations which we believe may be amenable to neural cell transplantation or treatment with our small molecule compound and represent potential target markets for our proposed products:

Medical Condition	Number of Patients	
Stem cells		
ALS	30,000	(1)
Huntington's disease	15,000	(2)
Multiple Sclerosis	2.5 million	(6)
Parkinson's Disease	1.0 million	(7)
Spinal Cord Injury	250,000	(4)
Stroke	6.5 million	(3)
Small molecule compound		
Alzheimer's disease	4.5 million	(5)
Depression	14.8 million	(5)
Schizophrenia	2.4 million	(5)
Stroke	6.5 million	(3)

(1) Agency for Toxic Substances and Disease Registry (ATSDR),
(2) National Institute of the Neurological Disorders and Stroke (NINDS)
(3) 2005 American Heart Association study
(4) The University of Alabama National Spinal Cord Injury Statistical Center - March 2002
(5) National Institute of Health
(6) National Multiple Sclerosis Society
(7) Parkinson's Disease Foundation - US only

Our Technology

Stem Cells

Our technology includes the ability to isolate human neural stem cells from most areas of the human brain and spinal cord and to grow them into physiologically relevant human neurons of all types. Our core patents entitled:

- Isolation, Propagation, and Directed Differentiation of Stem Cell from Embryonic and Adult Central Nervous System of Mammal; and

- In Vitro Generation of Differentiated Neurons from Cultures of Mammalian Multi-potential CNS Stem Cell

contain claims which cover the details of this process and the culture of cells created. What differentiates our stem cell technology from others is that our patented processes do not require us to "push" the cells towards a certain fate by adding specific growth factors. Our cells actually "become" the type of cell they are fated to be. We believe this process and the resulting cells create a technology platform that allows for the efficient isolation and ability to produce, in commercially reasonable quantities, neural stem cells.

Our technology allows for cells to grow in cultured dishes, also known as “in vitro” growth, without mutations or other adverse events that would compromise their usefulness. We believe this provides the following advantages:

- Our cells are multipotent, so they give rise to the three critical cell types of the nervous system: neurons (cells that carry signals throughout the brain and spinal cord), astrocytes (cells that support and protect neurons), and oligodendrocytes (cells that provide insulation to neurons to make signaling efficient).
- The cells are lineage-restricted, so they only give rise to cells of the nervous system. For example, our spinal cord stem cells can only form cells found within the spinal column.

- Our technology enables large-scale expansion of neural stem cells under controlled conditions without introducing mutations or other adverse events that would compromise their usefulness.
- Our spinal cord cells can be produced in commercial quantities.
- We have isolated and cultured cells from multiple regions of the brain, allowing application to a number of serious disorders. Cells have been isolated from spinal cord (ALS, spinal cord injury), hippocampus (stroke, Alzheimer's disease), midbrain (Parkinson's disease), and cortex (ischemia).
- Universal Compatibility. The Company's stem cell products are provided to patients as 'allografts,' As such, the recipient is not genetically identical to the donor, and may be treated with a course of immunosuppressant drugs to prevent rejection of the cells. This strategy allows for a single stem cell product to be provided to many thousands of patients, ensuring the highest degree of quality in manufacturing and predictability in outcome. Because the brain and spinal cord are considered 'immune privileged' by most experts in the field, it is expected that immune suppression of the patient will only be performed for a brief period, allowing for minimal disruption of their normal immune function.
- Our biologic drug candidates can be stored frozen at end-user medical facilities until they are needed. This is a key feature of our technology.

Although not the focus of our business, our technology also has ancillary uses with respect to drug development. Our ability to grow and differentiate neural cells in vitro, gives us the ability to analyze the potential biological effects of molecules on these cells.

Small Molecule Compounds

The Company has developed and patented a series of small molecule compounds (low molecular weight organic compounds which can efficiently cross the blood/brain barrier) . We believe that these small molecule compounds will stimulate growth of new neurons in the hippocampus and provide a treatment for depression, and possibly other cognitive impact diseases. In December 2010 the FDA approved our application to conduct a clinical trial with our first small molecule compound to treat Major Depressive Disorder. The trial has two phases, 1A and 1B. The 1A trial is a healthy volunteer safety study. The 1B is also a safety study involving actual Depression patients.

In July of 2009, the U.S. Patent and Trademark Office 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 included in them.

Business Strategy

Neuralstem has a number of prospects for developing treatments for central nervous system disease using its stem cells and small molecule compounds.

Clinical Trials

Stem Cells

The following summarizes the current status of, and the anticipated initial indications for, our therapeutic product development programs.

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 11 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 in connection with our proposed Phase I clinical trials for chronic spinal cord injury. In October of 2010, we were notified that our IND for spinal cord injury had been placed on clinical hold. At the time, the FDA provided us with specific comments, questions and recommendations for modifications to our trial protocol as contained in our IND application.

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.

In November 2010 we filed an IND to commence human safety trials of our lead small molecule compound to treat major depression. The FDA approved the application in December. The first patient was dosed in February 2011. This Phase Ia trial will test a single oral administration of NSI-189 in healthy volunteers. When the maximum tolerated single dose is determined, the trial will progress to the Ib phase, testing the safety of escalating doses of daily administration for 28 days in patients with major depressive disorder (MDD). The entire Phase I trial is expected to be approximately one year in duration.

In anticipation of filing the IND, we completed 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.

Our Research and Programs

We have devoted substantial resources to our research programs to isolate and develop a series of neural stem cell banks that we believe can serve as a basis for 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 both internally and through the use of third party laboratory consulting companies under our direct supervision.

In addition to research that we conduct internally or under our direct supervision, we conduct research and development through research collaborations. These collaborations, or programs, are undertaken with both commercial and scholarly institutes pursuant to the terms and conditions of our standard material transfer agreement.

The terms of our standard material transfer agreement require us to provide our research partner or collaborator with access to our technology or "research materials," which are comprised of our neurological stem cells, for a specific pre-defined purpose. As part of the agreement, we agree to provide sufficient research materials and technical assistance to accomplish the purpose of the program. The determination of sufficiency is determined at our sole discretion. As part of these agreements, we are entitled to certain reporting rights and the right to have patentable discoveries presented to us prior to publication in order for us to file applicable patents. In the event we choose to file a patent, we will either be responsible for all filing and maintenance fees or we will split the fees with our research partner depending on the type of patent to be filed. The agreements also provide for us to receive a fully paid up, royalty free, non-exclusive license to any inventions made by our partner with respect to our technologies and their interest in any intellectual property jointly developed and first right to negotiate an exclusive license. The agreements also provide confidentiality between the parties. Generally each party is responsible for its own expense, there are no milestone payment or royalty payment requirements and the duration of these agreements is for a three year term which can be terminated by either party by providing 90 days written notice. Also, these agreements may require us to pay for certain costs and expenses incurred in connection with the research.

Manufacturing

We currently manufacture our cells both in-house and on an outsource basis. We manufacture cells in-house which are not required to meet stringent FDA requirements. We use these cells in our research and collaborative programs. We outsource all the manufacturing and storage of our stem cells to be used in pre-clinical works, and which are accordingly subject to higher FDA requirements, to Charles River Laboratories, Inc., of Wilmington, Massachusetts. The Charles River facility has the capacity to be used for cell processing under the FDA determined Good

Manufacturing Practices (GMP) in quantities sufficient for our current and anticipated pre-trial and clinical trial needs in both the near to intermediate term. We have no quantity or volume commitment with Charles River Laboratories and our cells are ordered and manufactured on an as needed basis.

Products & Marketing

Because of the early stage of our programs, we have yet to identify any specific product and we have not yet addressed questions of channels of distribution and marketing of potential future products.

Our Intellectual Property

Our research and development is supported by our intellectual property. We currently own or have exclusive licenses to 16 patents a