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The Neural Stem Cell Institute is a 501(c)(3) not-for-profit, which accepts charitable donations. We are grateful for all donations and pride ourselves on putting over 95% of those funds toward scientific research, versus administration or fundraising. This truly makes NSCI unique. For information on how you can help, contact us at (518) 694-8188.

Our Mission: Stem Cell Research to Cure Nervous System Disease

The Institute, Events, and Our Research

1. SEVEN YEARS AND GROWING
   Institute achievements and goals
2. PARKINSON’S RESEARCH PROGRAMS
   Living stem cells for therapy and drug discovery
3. SPINAL CORD INJURY RESEARCH
   A complex condition requiring novel approaches
4. FIGHTING MACULAR DEGENERATION
   Exciting developments as we translate research into therapy

Join Our Celebration of Stem Cells in Saratoga Springs, NY

3rd Annual Stem Cell Soiree
Wednesday, July 16 • 6pm – 8:30pm
Saratoga National Golf Club

Join us for this meaningful event giving hope to people suffering with diseases of the central nervous system. Revolutionary treatments are on the horizon for life-altering diseases such as macular degeneration, spinal cord injury, Parkinson’s disease and Alzheimer’s. And cures are not far behind.

NSCI researchers led by renowned scientist Dr. Sally Temple will share their latest findings and discuss the potential medical applications of stem cell research.

Be a stakeholder in a cure. See you in July!

For sponsorship information contact Suzanne Kawola at (518) 694-8188, ext. 242.
Stem Cells Offer a Path to Curing Spinal Cord Injury

Spinal cord injury (SCI) is a devastating condition. It is complex and multifaceted. For those affected, there are three major obstacles to therapy: loss of neurons, production of an impenetrable glial scar and loss of key insulation cells (oligodendrocytes). Stem cells can help overcome these problems by repair and regeneration in many cases. In mice and humans, existing stem cells are inhibited and dormant after injury. Researchers have found that injecting new stem cells into injured spinal cords produces remarkable results, allowing paralyzed mice to walk again.

In addition to replacement therapy, it is possible to activate the dormant, resident stem cells within the spinal cord to stimulate natural repair. NSCI research has demonstrated that small biodegradable beads that release stem cell activating factor stimulate resident stem cells to mediate repair and regeneration, and reverse paralysis. NSCI is poised to move this exciting finding from lab mice to the bedside.

Discoveries Helping Patients with Parkinson’s Disease

Investigators at NSCI are discovering new ways to help patients suffering from Parkinson’s disease. Specifically, we have developed a new technique for generating human dopamine neurons (the cells that die in PD) from stem cells in large numbers. This enables us to move forward on two important fronts:

1) the supply of stable, healthy neurons for development of cell replacement therapies in PD patients; and
2) the production of mass quantities of cells that can be used to screen libraries of drugs to find preventative therapeutics.

In PD, a very specific set of brain cells known as dopamine neurons die. These cells are responsible for regulating our movement. As the neurons die, patients start to have difficulty walking and eventually can become immobile. We still know relatively little about the disease. For example, it’s unclear why these specific cells are dying. Because of this, drugs cannot be made properly. Pharmaceutical companies have libraries of compounds that could be useful if we can create a drug screen that is highly relevant to PD. Our latest research shows that we can successfully generate these human dopamine neurons in large numbers, sufficient for these cell-intensive drug screens.

A research team at the Neural Stem Cell Institute has created a specialized RPE stem cell (retinal pigment epithelial) for transplantation behind the retina that could potentially restore vision for people with age-related macular degeneration.

In December 2012, New York State awarded Dr. Sally Temple, Jeff Stern and the institute $10.6 million for the preclinical development of a treatment for age-related macular degeneration—the leading cause of vision loss in Americans age 60 and older.

Dr. Richard Davis and Michael Naimark joined the newly formed Retinal Stem Cell Consortium in 2013 to help forward its mission. Dr. Davis says his incentive to join the consortium was practical: “I became interested in translational medicine to use some of the skills I had gained to try to find cures for disease. Part of what excited me most about starting here was being able to get as close as I could to fulfilling the dream that you could actually go from identifying a mutation to having a cure for a patient.”

A biomedical researcher for over 20 years, Richard shares his disappointment with the phrase “this will lead to a cure” as the familiar refrain. “We’ve found many, many genes, but there are not many, many cures,” he says. “So, when I found this opportunity, I really jumped on it, because this is the next logical step, taking a project to clinical trials. It feels like I have been riding a wave and the wave consists of new technologies and new opportunities that are being taken advantage of to actually do something for people.”

Consortium Project Manager Michael Naimark occupies an office adjacent to Richard’s, and he says that’s no coincidence. “Richard really understands what’s going on with the nuts-and-bolts science that’s taking place,” says Michael. “I have a scientific background, but in the last dozen years or so have found myself mainly being a study director focused on project oversight and regulatory compliance. I’m used to running large projects with a lot of different people in a lot of different locations...making sure everyone knows what the other people are doing and that the stakeholders are aware of what they need to be waiting for and what they need to be responding to.”

Naimark underscores: “Can we do this project in the time allotted in such a way that the FDA will look at what comes out of our work and say this is done to an acceptable standard of quality?”

With a team of 13 researchers at NSCI and four external collaborating groups, the Retinal Stem Cell Consortium is working toward preclinical trials. Dr. Davis is confident about their progress. “You see the clinical value of what you are doing for people,” he says. “And, we’re very fortunate to be located where we are geographically, because it gives us access to specialized expertise that we might not have access to otherwise,” Naimark adds enthusiastically. “This can potentially affect a huge swath of people.”

Naimark emphasizes the potential significance of a therapeutic solution, as there are currently 30 to 50 million cases of age-related macular degeneration worldwide and 5 million new cases diagnosed annually.

Stem Cell Conference

Two Annual Next Gen Stem Cell Conference

Come get a first-hand glimpse of the exciting work under way here at NSCI. Our research is aimed at finding cures for some of the world’s most devastating nervous system diseases. The NSCI team works day and night with one goal in mind: translate stem cell research into therapies that help people. So put on a lab coat, look down a microscope and talk with our researchers. See, and believe – so you can feel the passion we have for this vital work.

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Tour our Labs – See Our Scientists at Work

Saratoga National Golf Club

www.nextgenstemcell.com

Sponsored by StemCulture LLC

May 7-8, 2014

Dr. Sally Temple

Dr. Jeff Stern

Dr. Michael Naimark

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