

Stem Cell Research and Multiple Sclerosis

The National MS Society's Commitment to Pursue all Promising Research Leading to a World Free of MS

The National MS Society's Position Regarding Stem Cell Research

Multiple Sclerosis (MS) is considered an autoimmune disease where the body attacks itself resulting in damage to the nervous system. MS can cause paralysis, blindness, cognitive dysfunction, mobility impairment and many other serious symptoms. To find new ways to prevent, slow the progression or repair the devastating effects of MS, the National Multiple Sclerosis Society supports the conduct of scientifically meritorious medical research, including research using human cells, in accordance with federal, state and local laws and with adherence to the strictest ethical and procedural guidelines.

Deliberations Supporting the Society's Position

This long-standing position was confirmed in 2005, when the National MS Society convened a Task Force on Stem Cell Research, representing volunteers, people with MS, basic and clinical researchers, MS neurologists and staff. The task force considered presentations from stem cell researchers, legal and regulatory experts, bioethicists, and representatives from other voluntary health agencies. The task force concluded that research using all types of stem cells holds great promise, potential, and hope for people affected by MS. There is a high likelihood that research on all types of stem cells will improve our understanding of the MS disease process and lead to new pathways for therapeutic intervention.

For these reasons, the task force recommended that the Society reiterate its commitment to supporting and encouraging research utilizing all human cells and that the Society advocate more publicly for state and federal policies conducive to stem cell research.

The task force also recommended that the Society hold a scientific symposium in early 2007 involving leading stem cell experts from around the world to further explore the viability of all types of stem cell research for the treatment, prevention and cure of MS. This meeting fostered information exchange and collaborations between stem cell experts and MS experts, and established future directions that could propel MS research on a global scale.

Research On All Types of Stem Cells Holds Promise

Research on all types of stem cells is critical because we have no way of knowing at this point which type of stem cell will be of the most value in multiple sclerosis. Stem cells – adult or embryonic – could have the potential to be used to protect and rebuild tissues that are damaged by MS, and to deliver molecules that foster repair or protect vulnerable tissues from further injury.

Stem cells can also be cultivated in lab dishes where they can be used to find new drugs and to discover new genes and molecules with the potential to stop MS or repair its damage. Stem cells created with the DNA of persons with MS may help answer questions about the cause of MS and may help us model and treat MS once the underlying cause of MS is better understood.

Researchers are exploring the potential of adult stem cells, such as those derived from bone marrow, as well as stem cells derived from the umbilical cords of newborns. Because these cells are more mature, they are more specialized, and the successes reported with them so far largely relate to their ability to replace specific blood cells. Researchers are attempting to reprogram these cells into becoming less specialized so that they might serve as a resource for other cell types that might be suitable for research into experimental therapies. So far, researchers have not been able to get these cells to produce the quantities that would be needed for transplantation.

Some cell therapy experiments in animals have had some success in taking adult neural stem cells from laboratory animals and transplanting them into other lab animals to restore myelin, the insulating material which is attacked and damaged in MS. In humans, small numbers of these adult neural stem cells have been obtained during brain surgery for other disorders. However, gathering sufficient sources of such cells without harming individuals is not yet feasible. Researchers are continuing to explore ways to expand the number of cells for this purpose.

Unlike stem cells from adult tissues, embryonic stem cells are not yet committed (differentiated) to becoming a specific type of cell. As such, they can be coaxed into becoming different types of cells targeted by the MS disease process. This makes them a unique and invaluable tool that can be applied to understanding MS and finding new treatments.

More research is needed to understand which stem cells, from what sources, hold the greatest promise for each line of inquiry and for repair in MS.

Restrictions Threaten Important Research

Although rapid progress is being made involving stem cells in understanding and treating MS, current federal regulations are having a negative effect on the conduct of human embryonic stem cell research. Of over 70 human embryonic stem cell lines originally approved for federal research funding by the Bush Administration, only 22 are available to researchers. Those 22 approved cell lines are contaminated by nutrients from the mouse cells in which they have been stored, and they will probably never be viable for clinical use in humans.

The National MS Society is concerned that current regulations are having a negative effect on the conduct of human embryonic stem cell research and could (a) force this type of research into the private domain and thus limit its accessibility to the broader research community; (b) compel researchers to relocate their laboratories to countries with more favorable regulatory environments; and (c) increase the administrative costs for public and private funders of such research.

There is an additional concern. Forcing this type of research to be performed outside of the federal domain prevents the government from providing the type of oversight that it provides for other forms of research.

Legislative Action

To remedy the flaws in the current federal policy, the Society has supported recent legislation that would increase the number of approved embryonic stem cell lines that can be used in federally funded research by allowing new lines to be generated from embryos that have been donated for research purposes by people using the services of in vitro fertilization clinics. The Society's legislative brief on the subject of stem cells is available at this link:

http://www.nationalmssociety.org/docs/HOM/issuebrief_stemcell.pdf.

We believe that all promising avenues that could lead to the cure or prevention of MS or relieve its most devastating symptoms by repairing MS damage must be explored. We also respect the opinions of people who do not agree with us—and we wish to assure everyone that a simple request is all that is needed to ensure that their contributions will be devoted to other research areas or to the support of direct services that help individuals and families struggling with this disease to move forward with their lives.