

EMBRYONIC STEM CELL RESEARCH

ISSUE

The Episcopal Church supports the Stem Cell Research Enhancement Act of 2005 (the "Act"). Passage of the Act would provide federal funds for the ethical research of stem cells derived from human embryos that would otherwise be destroyed.

BACKGROUND

What are stem cells? All of the cells in the human body start off as stem cells. They are present at every stage of human development, from embryos to adults. Stem cells have a number of defining characteristics: (1) Stem cells are "undifferentiated", which means that they have not yet specialized to perform specific functions in the body; (2) They are "programmable." Scientists can coax them into becoming a specialized cell; (3) Stem cells can self-replicate indefinitely when taken from the body and studied in the lab. They create exact copies of themselves. A pool of these cells is called a "stem cell line."

How are stem cells used in research? Because stem cells are self-replicating and can be "programmed" to grow into a particular kind of specialized cell, scientists foresee using them to replace diseased cells in the body. Scientists hope that stem cell therapy will treat or cure many ailments, including Alzheimer's disease, cancer, Parkinson's disease, type-1 diabetes, spinal cord injury, stroke, burns, heart disease, osteoarthritis and rheumatoid arthritis.

If stem cells are present in the human body, why is it desirable to use embryonic stem cells? Adult stem cells generally differentiate into the same type of cell as their tissue of origin. For example, an adult stem cell in the bone marrow would normally give rise to many types of blood cells such as red blood cells, white blood cells and platelets. Embryonic stem cells, on the other hand, can become all cell types of the body. Moreover, large numbers of cells are needed for stem cell replacement therapies and can be easily grown in culture, but adult stem cells are rare in mature tissues and methods of culturing have not yet been perfected.

Why is embryonic stem cell research controversial? The embryos from which embryonic stem cells are result from fertility treatments and are donated for research. Scientists derive the stem cells from the "inner cell mass" of a 3- to 5- day old embryo. When the stem cells are removed, the embryo is destroyed. At this point, the embryo's cells have not begun to become body cells. The embryo has not developed to the point where it might split in two to become twins. Some people equate extracting stem cells with abortion and murder.

President Bush issued an executive order on August 9, 2001 prohibiting federal funding of any research using human embryonic stem cells harvested after that date. Seventy-eight stem cell lines were approved for federal funding. Only 22 stem cell lines were suitable for research.

Why are additional lines needed? The 22 original lines were created for research, rather than clinical purposes and were sustained using "feeder cells" from mice. Scientists worry that the 22 stem cell lines

have been exposed to mouse viruses that would make them dangerous for human clinical treatment. Since August, 2001, technology has improved such that animal feeder cells are no longer necessary to sustain stem cell lines. But no federal money can be used on the new stem cells that could actually be used in clinical medicine.

Moreover, the 22 original lines are also simply inadequate given the significant testing and research still necessary before stem cell therapy becomes a reality. Countries that fund stem cell research, such as Singapore and South Korea, have been able to create new lines more quickly and easily than was possible just a few years ago. They are making great strides towards clinical use of stem cells. These countries are also attracting top scientists to their laboratories, causing some to worry about an American brain drain.

Where do scientists obtain the embryonic stem cells? The embryos from which embryonic stem cells are obtained are created as part of routine fertility treatments. As part of in-vitro fertilization (IVF), it's common for a doctor to fertilize several of a woman's eggs, creating multiple fertilized embryos. Only a few are implanted. IVF patients are free to determine what should happen to the remaining embryos. Most elect to keep them frozen for future pregnancy attempts. Some patients elect to discard the embryos. Others donate them to scientific research. Embryonic stem cell lines are created from the embryos that have been donated to scientific research by informed IVF patients.

The Stem Cell Research Enhancement Act of 2005. The Act would provide federal funds for research using embryonic stem cells provided three requirements are met: (1) The stem cells were derived from embryos created at IVF clinics for the purpose of fertility treatment and were in excess of the clinical need of the individuals seeking such treatment; (2) Prior to the consideration of embryo donation, it was determined that the embryos would be discarded; (3) The individuals seeking fertility treatment donated the embryos with written informed consent and without receiving any inducements to make the donation.

109th CONGRESS

The House of Representatives passed the Stem Cell Research Enhancement Act of 2005 on May 24, 2005. The Senate is expected to consider its version of the legislation this year. President Bush has said repeatedly that he would veto the bill. It is unknown whether the House has enough votes to override a presidential veto.

GENERAL CONVENTION RESOLUTION IN SUPPORT OF EMBRYONIC STEM CELL RESEARCH

Resolution 2003-A014. Support Human Embryonic Stem Cell Research. *Resolved*, That the 74th General Convention of The Episcopal Church, believing that a wider availability of embryonic stem cells for medical research holds the potential for discovery of effective treatment of a wide variety of diseases and other medical conditions;

- (A) Support the choice of those who wish to donate their early embryos, remaining after in vitro fertilization (IVF) procedures have ended; and
- (B) Urge that the United States Congress pass legislation that would authorize federal funding for derivation of and medical research on human embryonic stem cells that were generated for IVF and remain after fertilization procedures have been concluded, provided that:

1. these early embryos are no longer required for procreation by those donating them and would simply be discarded;
2. those donating early embryos have given their prior informed consent to their use in stem cell research;
3. the embryos were not deliberately created for research purposes;
4. the embryos were not obtained by sale or purchase; and be it further

Resolved, That the 74th General Convention of The Episcopal Church urge the Secretary of Health and Human Services to establish an interdisciplinary oversight body for all research in both the public and private sectors that involves stem cells from human embryos, parthenotes, sperm cells, or egg cells, and have this body in place within six months of passing such legislation; and be it further

Resolved, That the 74th General Convention of The Episcopal Church direct the Secretary of General Convention to communicate this resolution to appropriate members and committees of the United States Congress and direct the Office of Government Relations to identify and advocate the legislation called for by this resolution.

WHAT YOU CAN DO

Contact your Senators and urge them to support consideration and passage of S. 471, the Stem Cell Research Enhancement Act of 2005.

OTHER RESOURCES

- Episcopal Public Policy Network, <http://www.episcopalchurch.org/eppn>
- ENS Report: Episcopal Church leaders praise new stem cell research bill
http://www.episcopalchurch.org/3654_62380_ENG_HTM.htm
- The National Institutes of Health, <http://www.ninds.nih.gov/stemcells/>
- Guidelines for Human Embryonic Stem Cell Research (2005), The National Academy of Sciences, <http://www4.nationalacademies.org/news.nsf/isbn/0309096537?OpenDocument>