Washington State
House of Representatives
Office of Program Research

BILL ANALYSIS

Technology, Energy & Communications Committee

HB 1163

Brief Description: Creating a human stem cell research advisory committee.

Sponsors: Representatives B. Sullivan, Morris, Schual-Berke, Chase, Upthegrove, Hasegawa, Wallace, Appleton, Ormsby, Anderson, Moeller and Santos.

Brief Summary of Bill

- Creates the Human Stem Cell Research Advisory Committee (Committee) as a standing committee of the Life Sciences Discovery Fund Authority (Authority).
- Requires the Committee to develop and recommend to the Authority guidelines for research involving human stem cells in Washington.
- Requires the Authority to use the recommended guidelines in determining which human stem cell research projects meet grant funding criteria.
- Allows the Committee to review on behalf of the Authority specific research proposals that include the use of human stem cells.

Hearing Date: 2/7/07

Staff: Scott Richards (786-7156).

Background:

The Biology of Stem Cells

Stem cells can be distinguished from other types of cells in three ways. First, they are capable of dividing and replicating (renewing) themselves indefinitely. Second, stem cells are unspecialized. This means that they do not perform any specific function, as do heart muscle cells, red blood cells, or nerve cells. Lastly, stem cells can create specialized cells. While stem

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cells do not perform a particular function, they can give rise to specialized cells while remaining unspecialized themselves.

Stem cells can be classified as embryonic stem cells, embryonic germ cells, and adult stem cells according to the stage of development of the organism. The key difference between embryonic stem cells and adult stem cells is that an embryonic stem cell can become any type of cell in the body, while adult stem cells can only vary between the different types of cells within the organ in which they are found. Some research, however, has suggested that adult bone marrow stem cells may have similar characteristics. Another significant difference is that embryonic stem cell replication can generate large numbers of new cells, while adult stem cells do not replicate as easily under current technology.

Scientists obtain human embryonic stem cells from the blastocyst stage of embryos that are not used after in vitro fertilization treatment. The blastocyst is the stage of embryonic development that occurs approximately four to five days after fertilization of the oocyte and prior to implantation in the uterine wall. In 1998 scientists first isolated and cultured human embryonic stem cells, a process that destroys the embryo. Current research using stem cells pertains to diabetes, Parkinson's disease, heart disease, strokes, cancer, arthritis, burns, congenital birth defects, and spinal cord injuries.

Federal and State Policy on Stem Cells

In 1995, Congress passed legislation prohibiting the use of federal funds for research that may harm a human embryo. The most recent executive order to interpret this law was issued in August 2001 when the President announced that federal funding of embryonic stem cell research would be permitted only for research on the embryonic stem cell lines in existence at that time; funding would not be available for any subsequently created embryonic stem cell lines. The limitation does not apply to privately funded research. At the same time, the President announced the creation of the President's Council on Bioethics to study the ethical and moral implications of developments in biomedical and behavioral science and technology.

In the past few years, some states have passed legislation regulating stem cell research. Bills were enacted in South Dakota and Kansas to restrict the use of human embryonic stem cells for research, while California and New Jersey have declared that it is their policy to permit research regarding human embryonic stem cells, human embryonic germ cells, and human adult stem cells. Several states have created institutes to coordinate stem cell research, including California which recently passed Proposition 71 to provide $3 billion to fund stem cell research.

Somatic Cell Nuclear Transfer (SCNT)

Somatic Cell Nuclear Transfer is the scientific term for cloning. Somatic cells are any body cell other than gametes (egg or sperm). The process of SCNT can be used for therapeutic or reproductive purposes.

Therapeutic Cloning

The goal of therapeutic SCNT is to create cells that exactly match a patient. By combining a patient's somatic cell nucleus and an enucleated egg (nucleus removed), a scientist may harvest embryonic stem cells from the resulting embryo that can be used to generate tissues that match a patient's body. This means the tissues created are unlikely to be rejected by the patient's immune system.

Reproductive Cloning
The goal of reproductive SCNT is to create an animal being identical to the animal that donated the somatic cell nucleus. The embryo is implanted in a uterus and develops into a live being. The first animal to be created by reproductive cloning was Dolly the sheep, born at the Roslin Institute in Scotland in 1996.

While SCNT can be used for therapeutic or reproductive purposes, the initial stage that combines an enucleated egg and a somatic cell nucleus is the same.

Life Sciences Discovery Fund
In 2005, the Legislature created the Life Sciences Discovery Fund Authority (Authority) with the purpose of promoting life sciences research to foster a preventive and predictive vision of the next generation of health-related innovations, to enhance the competitive position of Washington in this vital sector of the economy, and to improve the quality and delivery of health care for the people of Washington. It is expected that this purpose will be achieved by making grants to research institutions in the state.

Beginning in 2008, Washington's receipts from the tobacco settlement will increase by $35 million per year. The legislation establishing the Authority funnels these monies into a trust account and authorizes the Authority's trustees to expend it. The intent is to use the money to help Washington research institutions advance both their competitiveness for external grant support and their ability to move discoveries toward commercialization.

The Authority is governed by an 11 member board, with seven members appointed by the Governor and four members appointed by the Legislature.

Summary of Bill:

Creation of the Human Stem Cell Research Advisory Committee
The Life Sciences Discovery Fund Authority shall create the Human Stem Cell Research Advisory Committee (Committee) as a standing committee of the Authority. The Committee shall consists of nine members appointed by the Governor. In making appointments to the Committee, the Governor is to consider candidates as recommended for appointment by the University of Washington and the biomedical community.

The Committee shall consists of the following members:
- five scientists with experience in biomedical research in the field of cell differentiation, nuclear reprogramming, tissue formation and regeneration, stem cell biology, developmental biology, regenerative medicine, or related fields;
- two medical ethicists;
- one person with a background in legal issues related to human embryonic stem cell research, in vitro fertilization, or family law, as it applies to the donation of blastocysts and oocytes; and
- one member of the public.

Research Guidelines
The Committee is responsible for developing scientific, ethical, and legal guidelines for research involving the derivation or use of human adult stem cells, human embryonic germ cells, and human embryonic stem cells in Washington. The Authority will use the guidelines to assist in

determining which human stem cell research projects meet grant funding criteria. The Committee must submit these guidelines to the Authority by July 1, 2008.

The guidelines will include the following:

- recommendations for the Authority to use when selecting projects involving the derivation of human embryonic stem cells by any method, including somatic cell nuclear transfer.
- recommendations to inform the Authority of specific scientific, ethical, and legal considerations to examine in its selection of research projects involving human stem cells.

After adoption of the initial guidelines, the Committee may revise the guidelines, issue advisory opinions, or provide other technical assistance, at the request of the Authority, to account for new developments in research and medicine.

Review of Specific Research Proposals

The Authority may request that the Committee review specific research proposals that include the use of human stem cells. Such a review by the Committee must be submitted to the Authority, which will make all final determinations on project approval and funding.

Appropriation: None.

Fiscal Note: Preliminary fiscal note available.

Effective Date: The bill takes effect 90 days after adjournment of session in which bill is passed.