



**House
Legislative
Analysis
Section**

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**RESTRICT RESEARCH ON
CELLS/TISSUES TAKEN FROM
LIVE EMBRYOS**

**House Bill 4507 (Substitute H-1)
First Analysis (5-15-03)**

**Sponsor: Rep. Jacob Hoogendyk
Committee: Health Policy**

THE APPARENT PROBLEM:

Research on stem cells has attracted much attention in recent years. According to the National Institutes of Health’s primer on the subject, stem cell research advances scientists’ understanding of how organisms develop from single cells and how healthy cells come to replace damaged cells in adult organisms. Such research may help scientists develop regenerative or reparative therapies to treat diseases and injuries, such as Parkinson’s disease, diabetes, heart disease, and spinal-cord injuries, new ways of screening drugs and toxins, and greater understanding of birth defects. As the report explains, researchers can obtain two kinds of stem cells from human beings and other animals: embryonic stem cells and adult stem cells. All stem cells have certain properties in common: they can divide and renew themselves for long periods, they are unspecialized, and they can give rise to specialized cells through a process called differentiation. At the same time, embryonic and adult stem cells have different functions and characteristics, which give them distinct advantages and disadvantages for use in cell-based therapies. For instance, embryonic stem cells, which are typically taken from a four- to five-day old embryo or “blastocyst”, are pluripotent, meaning that they can be induced to become any type of specialized cell. Adult stem cells, which can be taken from tissue of the brain, bone marrow, skin, and liver (among other parts of the body) are generally limited to becoming different cell types found in their tissue of origin, though some evidence suggests that adult stem cells may have a wider range of cell types that they can become.

Human embryonic stem cell research dates back only to 1998 when scientists who had learned how to obtain stem cells from mouse embryos about 20 years earlier finally succeeded in isolating stem cells from human embryos and growing the cells in a laboratory. The embryos used for the research had been created through in vitro fertilization for infertility purposes but had been donated for research with the donor’s informed consent. Whatever the scientific

advantages and disadvantages of using embryonic stem cells in research may be, extracting stem cells from an embryo requires the embryo’s destruction. For those who believe that human life begins at conception or at some very early point in the embryo’s development, the destruction of an embryo for the potential contribution that research might make in better understanding or improving others’ health is morally problematic.

Since its enactment in 1978, the Public Health Code has prohibited the use of a live human embryo for “nontherapeutic research” if the person conducting the research judges, based on the available knowledge, that the research will substantially jeopardize the life or health of the embryo. The code defines “nontherapeutic research” as scientific or laboratory research, or other experimentation or investigation not designed to improve the health of the research subject. The code also specifically prohibits a person from performing nontherapeutic research on an embryo that she or he knows to be the subject of a planned abortion, unless the abortion is being performed to protect the life of the mother. A violation of either of these prohibitions is a felony punishable by imprisonment for up to five years.

Some people have expressed concern that researchers in Michigan might import cells or tissue originally obtained from live human embryos in other states or countries. (A spokesperson for the Department of Community Health indicated that the department does not know if any research involving stem cells obtained in this way is currently being performed in Michigan.) Legislation has been introduced to prohibit persons from conducting research using cells or tissues taken from any live human embryo if the extraction of the cells or tissues jeopardized the health or life of the embryo or caused the death of the embryo.

MCL 333.2685a

House Bill 4507 (5-15-03)

THE CONTENT OF THE BILL:

House Bill 4507 would amend the Public Health Code to prohibit a person from knowingly using for research purposes any cells or tissues that were extracted from a live human embryo and, as a result, substantially jeopardized the life or health of that embryo or caused that embryo's death.

A violation of this prohibition would be a felony punishable by imprisonment for up to five years.

MCL 333.2685a

BACKGROUND INFORMATION:

The NIH primer on stem cell research may be found at www.nih.gov/news/stemcell/primer.htm

FISCAL IMPLICATIONS:

According to the House Fiscal Agency, the bill in its original form would have no fiscal impact on state or local government besides costs of implementing and enforcing the new law. (HFA fiscal analysis dated 5-12-03)

ARGUMENTS:

For:

Doctors take the Hippocratic Oath to do no harm. Existing state law prohibits the use of a live human embryo for research not designed to benefit the embryo if the research will jeopardize the embryo's health or life. Extracting stem cells from embryos involves the destruction of an embryo and therefore is clearly illegal in Michigan. However, researchers who want to perform embryonic stem cell research may try to find a source of the cells from outside of the state and then import the cells into Michigan where they intend to perform their research. Because the health code was written to protect life at this stage, it is wrong for researchers in the state to circumvent the law and make use of cells that were extracted from embryos in other jurisdictions where the extraction of stem cells is not (necessarily) illegal. While researchers are not required to take the Hippocratic Oath, nontherapeutic research that involves or relies on the destruction of an embryo uses one form of human life solely as a means of enhancing other forms, and violates the essential dignity of all human life.

Besides, adult stem cells can be extracted from healthy individuals' blood and organs with no

damage to the patient. While adult stem cells may not replicate themselves as quickly as embryonic stem cells and may be less versatile (though the evidence is still out on this point), researchers have yet to prove that embryonic stem cells have any therapeutic benefit whatsoever. In fact, as a July 2002 article in *Nature*, explains, there are two "technical obstacles" to the use of embryonic stem cells: first, they will not be immunologically compatible with most patients requiring cell transplants, and second, after transplantation, they form benign tumors that contain multiple tissue types. While there are ways of getting around these obstacles, perhaps the best way to do so is to focus energy on finding and making use of versatile adult stem cells. Some recent research suggests that there are some adult stem cells with a potential to transform themselves into multiple cell types.

Against:

A four- to five-day embryo shares few if any of the human characteristics that merit the moral consideration that persons deserve. The original human embryonic stem cell research was performed on eggs that had been fertilized in vitro to help women conceive and subsequently were donated for research purposes, with the full informed consent of the donors. The embryos were already alive and were no longer going to be used for fertilization purposes anyway. Large quantities of embryonic stem cells exist in clinics across the country, and it is unclear who is benefiting by not allowing embryos to be used for research to help improve the health of actual living human beings, especially when those embryos will be destroyed anyway! Another possible source of embryonic stem cells is aborted embryos. Women have the right to have an abortion and should be able donate cells and tissues to further life. It is deeply troubling that some people want to prevent women who exercise their reproductive rights from contributing to potentially life-enhancing research. This may suggest a deeper agenda of trying to mischaracterize the pro-choice, pro-reproductive rights position as inherently anti-life.

Proponents of the bill support eliminating research on one of the most promising sources of knowledge about the human body and therapies to heal it. As the University of Wisconsin's stem cell research web site explains, embryonic stem cells are unique because they can develop into virtually any other cell in the human body. Embryonic stem cell research is helping scientists understand the earliest stages of

human development in new ways, by allowing them to study events that cannot be studied directly in humans in the uterus or in animal models. While adult stem cells show promise for treating some diseases, like liver disease, research suggests they may be less useful in other areas such as diseases of the brain and nervous system. Even if adult stem cells are proved to be more versatile than they have been so far, it is very questionable whether they can be harvested in large enough quantities for researching disease treatments. Researchers certainly should continue to investigate the potential uses of adult stem cells in therapies, but they should be allowed to investigate the potential uses of embryonic stem cells as well.

Finally, it should be noted that while much of the discussion of the bill has focused on embryonic stem cell research, the bill would actually prohibit a much wider range of research using cells and tissues extracted from live human embryos. In addition to reducing the benefits of embryonic stem cell research to Michigan's residents, the bill would reduce the benefits of other research on many other issues, including infertility and contraception.

POSITIONS:

The Michigan Catholic Conference supports the bill. (5-14-03)

A representative of Right to Life of Michigan testified in support of the bill. (5-13-03)

The Michigan Department of Community Health does not have an official position on the bill. (5-13-03)

The Michigan Conference of the National Organization for Women opposes the bill. (5-13-03)

The Michigan Abortion and Reproductive Rights Action League opposes the bill. (5-14-03)

The Michigan Section of the American College of Obstetricians and Gynecologists opposes the bill in concept. (5-14-03)

Analyst: J. Caver

■ This analysis was prepared by nonpartisan House staff for use by House members in their deliberations, and does not constitute an official statement of legislative intent.