



WISCONSIN
RIGHT TO LIFE

**Executive Summary
on Stem Cell Research**

Adult Stem Cell RESEARCH	vs.	iPS Cell RESEARCH	vs.	Embryonic Stem Cell RESEARCH
Treatments		Treatments		Treatments
73 Known Successful Therapies		None		None
Living Human Persons Killed to Obtain Cells		Living Human Persons Killed to Obtain Cells		Living Human Embryos Killed to Obtain Cells
None		None		All

Q. What are the types of stem cell research?

A. There are three types of stem cell research:

Adult,

iPS

Embryonic.

Adult and iPS research are ethical and practical.

Embryonic stem cell research is unethical because it involves the destruction of human life.

MOST COMMONLY ASKED QUESTIONS ABOUT STEM CELL RESEARCH

▶▶ **ADULT STEM CELL RESEARCH**

Q. What are adult stem cells?

A. Adult stem cells can be found in almost any part of the human body, including skin, fat, bone marrow, baby teeth, a newborn's cord blood or placenta, and the amniotic fluid surrounding the baby in the womb. Adult stem cells can be kept growing almost indefinitely in culture, with some having the ability to grow cells for treatments and to form any adult body tissue.

Q. Why is adult stem cell research ethical?

A. No one has to die to retrieve adult stem cells.

Q. Why is adult stem cell research beneficial to a patient?

A. The adult stem cells taken from a patient contain the patient's DNA, meaning the patient will not reject the cells when treated with them. They are also easy to obtain.

Q. Have adult stem cells been used to treat human patients?

A. There are 73 known successful therapies for human patients using adult stem cells. Illnesses that have been successfully treated include brain cancer, ovarian cancer, Crohn's disease, rheumatoid arthritis, sickle cell anemia, corneal regeneration, heart damage, Parkinson Disease and spinal cord injury. **Adult stem cells are the only ones that are helping real people with real diseases.**

▶▶ **iPS CELL RESEARCH (iPS = induced pluripotent stem)**

Q. What are iPS cells?

A. In late 2007, scientists in Wisconsin and Japan made an exciting and revolutionary discovery. They reprogrammed ordinary human skin cells into becoming stem cells with the same potential as embryonic stem cells. iPS cells are considered by scientists to be *pluripotent*, meaning they believe there is the potential to form any cell or tissue in the human body. This theory has not yet been proven.

Q. Why is iPS cell research ethical?

A. No one has to die to retrieve iPS cells.

Q. What are the practical benefits of iPS cells?

A. The cells taken from a patient to be reprogrammed as iPS cells contain the patient's DNA, meaning the patient will not reject the cells when treated with them. The ordinary cells used to begin the process are easy to obtain.

Q. Have iPS cells been used to treat human patients?

A. No human trials have been conducted using iPS cells. Various problems associated with reprogramming methods are the focus of scientists as they move forward to realize the full potential of iPS cells.

▶ EMBRYONIC STEM CELL RESEARCH

Q. What are embryonic stem cells?

A. Embryonic stem cells are found in living human embryos at the very earliest stage of life (first few days). Embryonic stem cells are considered by scientists to be *pluripotent*, meaning they believe there is the potential to form any cell or tissue in the human body. This theory has not yet been proven.

Q. Why is embryonic stem cell research unethical?

A. The living human embryo is destroyed in the process of obtaining the stem cells. It is ethically unacceptable and a violation of longstanding standards on human experimentation to destroy the life of one human person for the potential "benefit" of another.

Q. If frozen embryos are going to be destroyed anyway, what is the harm in using them for a "good" purpose?

A. Frozen embryos are not automatically destroyed as they can be (and are) adopted and implanted into women to develop fully and be born. Although there are approximately 400,000 frozen embryos in the United States, only 8,000 to 12,000 are available for research purposes. Experts note that if 10,000 embryos were thawed for research purposes, there would be approximately only 275 that are viable to create stem cell lines. Because 275 stem cell lines are not enough to conduct the extensive research envisioned, scientists are clamoring to clone human embryos to give them a limitless supply of embryos.

Q. What are the practical problems associated with embryonic stem cell research?

A. Not one human person in the world has been treated with embryonic stem cells as the cells grow uncontrollably and have the tendency to form tumors. Because a human embryonic stem cell has the DNA of a unique person, it would be rejected by a patient who has a different DNA. This is another reason why scientists are clamoring to clone human embryos -- to mitigate the rejection factor. It has not been proven that a cloned stem cell would not be rejected by the recipient.

▶ GOVERNMENT ACTION ON STEM CELLS

FEDERAL

- In 2001, President George W. Bush adopted a policy which allowed federal tax dollars to be used to conduct research on existing embryonic stem cell lines. Bush prohibited the use of federal tax dollars to destroy additional living human embryos.
- President Bush also increased funding for adult stem cell research. Bush signed the Stem Cell Therapeutic and Research Act passed by Congress to establish a federal program to make umbilical cord blood stem cell banks available to patients.
- In 2009, President Barack Obama overturned Bush's 2001 policy and allowed federal tax dollars to be used to destroy living human embryos and for stem cell lines established after 2001. Obama left the door open for Congress to approve the use of federal tax dollars to conduct human cloning for research purposes.
- President Obama also overturned a Bush policy which encouraged the National Institutes of Health to explore ethical alternatives to embryonic stem cell research.

STATE

- Governor James Doyle has invested millions of dollars in unethical embryonic stem cell research that has had zero results in treating people with diseases. Doyle has invested zero dollars in ethical adult stem cell research which is helping real people with real diseases.
- Governor Doyle signed a bill passed by the state legislature which requires that women giving birth be informed that their cord blood can be donated for research purposes.
- Governor Doyle vetoed a ban on **all** human cloning (including a ban on creating human clones to destroy them for research purposes) passed by the state legislature.



For more information, log on to www.WisconsinRightToLife.org and click "Stem Cells / Cloning" or phone toll free (877) 855-5007 or (414) 778-5780.

Our thanks to Dr. David A. Prentice for his contributions to this fact sheet.