

Fact Sheet - Advances in Ethical Stem Cell Research

Proponents of human embryonic stem cell research often cite all of the potential treatments that may result from the research but fail to mention that human life is destroyed when removing these cells from a human embryo. Now researchers have pioneered a different kind of treatment that carries the same potential for treating disease... without destroying human lives

Recent advances in research have found a way to potentially duplicate all the promises of embryonic stem cell research without endangering human life. There are two basic kinds of stem cells: embryonic and adult.

What is embryonic stem cell research? - This research involves taking the stem cells out of embryos which results in the destruction of the embryo. These stem cells, in embryos only several days old, are the foundation cells which will produce the more than 200 kinds of tissue in a human body. The potential that embryonic stem cells have is the ability to produce any type of tissue (pluripotency).

What is adult stem cell research? - This research involves using stem cells from adult patients. The term “adult” can be misleading, because these cells are found in many places like baby teeth and umbilical cord blood, none of which involves harming human life.¹ These cells are already programmed to repair specific damaged tissue in the body. Although it might not make national news, embryonic stem cells haven't treated any diseases in humans yet. Adult stem cell treatments, however, are being created and used for more than 70 conditions.²

Why the focus on human embryonic stem cells? - While embryonic stem cells have yet to treat anybody, some researchers state that embryonic stem cells have more potential than adult stem cells. Even though there are many problems with embryonic stem cells, like uncontrollable tumor growth and patients' immune rejection concerns, researchers continue to rebel against any restrictions or regulations addressing the research.

Recent advances have found a way around using embryonic stem cells – In November of 2007, researchers from Kyoto University and the University of Wisconsin independently discovered ways to make adult human skin cells mimic embryonic stem cells.³ Tests show these cells (induced-pluripotent stem cells, or iPS for short) have the same ability to turn into any type of tissue in the body.

iPS research avoids ethical dilemmas and practical problems with embryonic stem cells; ends cloning – Induced-pluripotent stem cells have all the potential of embryonic stem cells without ending any human lives. These advances may also fix two key problems with embryonic stem cells.⁴ If a patient's own skin cells can be used to treat her, her body's immune system won't reject what is already a part of her. Also, it takes many destroyed embryos to produce a large amount of stem cells. To find enough embryos, researchers have proposed cloning humans (also called therapeutic cloning or somatic cell nuclear transfer). Patients' skin cells are numerous and could be used to “cure themselves.”

Many people have ethical objections to destroying human embryos – Many people have legitimate concerns with the destruction of human life for human embryonic stem cell treatments. Medical science must be about protecting human life, not ending it. Did Nazi medical experiments on concentration camp prisoners and human syphilis testing on African-Americans in Tuskegee, Alabama, advance the human condition?

We can advance medical treatments using stem cells without destroying human life.

(Updated 8/11)

References

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- 3 - Nickerson, Colin. “Breakthrough on Stem Cells.” The Boston Globe, November 21, 2007. <http://www.boston.com>
- 4 - “Human Skin Cells Reprogrammed Into Embryonic Stem Cells.” ScienceDaily, February 12, 2008. <http://www.sciencedaily.com>

