
Further Information

United States Conference of Catholic Bishops web site www.usccb.org

A rich source of documents from the US Bishops and the Vatican.

First Do No Harm

www.stemcellresearch.org

An up to date compilation of scientific success stories of adult stem cell research

Ethical and Religious Directives for Catholic Health Services, Fourth Edition.

United States Conference of Catholic Bishops, 2001.

Evangelium Vitae: The Gospel of Life. John Paul II, 1995.

Donum Vitae: On Respect for Human Life. Sacred Congregation for the Doctrine of the Faith, 1987

Human life is sacred because from the beginning it involves the creative action of God.

Evangelium Vitae, Pope John Paul II

What kind of freedom is this that numbers among its rights that of abolishing someone else's freedom right from the start?

Truth and Tolerance, Pope Benedict XVI

The Office of Family Life / Respect Life

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A graphic consisting of a vertical grey bar on the right side of the page. A horizontal grey bar crosses it, and a large grey circle is positioned at the intersection. The text "Stem Cell Research: Update" is written in black, with "Stem Cell Research:" inside the circle and "Update" to its right.

Stem Cell
Research:

Update

Office of Family Life /
Respect life

Diocese of Trenton

New Developments in Stem Cell Research

The rapid pace of scientific advances in stem cell research amazes scientists, ethicists and politicians alike. The Office of Family Life/Respect Life offers this update to our *Stem Cell Primer* pamphlet to summarize recent scientific developments from the perspective of the Catholic Church.

What are stem cells?

Stem cells are the primitive cellular ancestors of all the specialized tissues in the human body. They are the subject of great scientific interest because of their capacity to multiply indefinitely in laboratory cell cultures and to develop into many different body tissues. It has always been known they are present in the embryo; only recently has it been discovered that stem cells persist into adulthood.

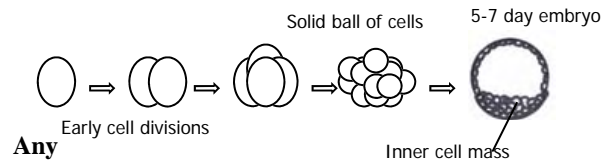
Embryonic Stem Cells

The only source for human stem cells until now, has been a living, healthy 5 to 7 day old human embryo. There are several ways scientists obtain human embryos:

- Embryos are “created” deliberately for stem cell research in the laboratory by using an egg and sperm. The egg and sperm are either donated or purchased.
- Unwanted or voluntarily donated embryos from couples attempting to become pregnant through in-vitro fertilization are used. Frozen embryos are thawed and if viable sacrificed for making stem cells. New laws even mandate that couples be informed of the option for donation of “extra” embryos to stem cell research in lieu of freezing or discarding them.

- They can be cloned. A nearly identical genetic copy is made of an adult by placing its DNA into an egg from which its own DNA has been removed. The embryonic clone is then sacrificed for stem cell research. This is so-called therapeutic cloning.

A human 5-7 day old embryo has already begun to mature from a small ball of identical cells, into cells which differ. The *inner cell mass* is removed to become stem cells after the “roof” of the embryo is dissected away. If left undisturbed, the inner cell mass would have developed into the baby and the “roof” into the tissues of the placenta and attachments to the mother.



Any methods which involve the destruction of a developing human embryo are forbidden. Embryonic human life cannot be destroyed for any reason - whether because it is unwanted or because it will be used to cure human illness.

Adult Stem Cells

Happily, another important and completely acceptable source of stem cells exists – adults. It has only recently been discovered that adult bone marrow, liver, brain and fat tissue harbor stem cells. Stem cells are particularly numerous in the placenta and in the umbilical cord blood of newborn infants. (Yes, infant cord blood is considered “adult” compared to an embryo.)

Scientists believe that for many purposes, these cells can substitute for embryonic stem cells and have the advantage that they can be harmlessly donated without sacrificing the life of the donor. Even better, adult stem cell research has already yielded clinical breakthroughs, leaving embryonic stem cell research at the starting

gate.

Newer Techniques

Recently, unique embryonic cells have been engineered in the hope of increasing the morally acceptable sources for stem cells. Scientists have cloned cells using DNA which has been modified to permit the early developmental potential of an embryonic stem cell without conferring the potential to develop into a mature embryo. This research has been hailed by scientists, ethicists and some bishops as an ethically acceptable way to obtain embryo-like human stem cells. No definitive Vatican statements on this new research have been issued.

Other promising research demonstrates that specialized cells taken from the amniotic fluid and placenta exhibit many characteristics of embryonic stem cells. These cells are freely available and simply collected, not created by scientists, so there would seem to be little ethical problem with their use.

Summary

Adult stem cell research is already yielding clinical results and is fully supported by the Catholic Church. Further funding should be encouraged.

Human embryonic stem cell research which destroys developing human life can never be morally acceptable, even for an intended good.

Newer techniques which do not involve the creation of a potentially adult human embryo can be studied and discussed while awaiting further ethical and moral reflection by the Church.

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