

The Science of

Stem Cells

***Finding
Cures &
Protecting
Life***

Understanding the
Relationship Between
Stem Cell Research and
Catholic Teaching

Stem Cell Research and Human Cloning: Questions and Answers¹

The *issue of stem cell research is a defining one in today's society. Its impact is not only emotional, as many people have family members or friends afflicted by debilitating conditions, but also one that has a critical impact upon human life in its earliest stages. Unfortunately there are many misconceptions regarding stem cell research that have become all too common. Despite the Church's advocacy for ethical and proven adult stem cell research, she is cast by some as opposing research advancements. We, the Catholic bishops of Michigan, offer here information using reason and faith to assist people in understanding the relationship between stem cell research and Catholic teaching about human life.*

What is a stem cell?

A stem cell is a relatively unspecialized cell that, when it divides, can do two things: make another cell like itself, or make any of a number of cells with more specialized functions. For example, just one kind of stem cell in human blood can make new red blood cells, or white blood cells, or other kinds—depending on what the body needs. These cells are like the stem of a plant that spreads out in different directions as it grows.

Is the Catholic Church opposed to all stem cell research?

Not at all. Most stem cell research uses cells obtained from adult tissue, umbilical cord blood, and other sources that pose no moral problem. Useful stem cells have been found in bone marrow, blood, muscle, fat, nerves, and even in the pulp of baby teeth. Many of these cells are already being used to treat people with a variety of diseases.

Why is the Church opposed to stem cell research using the embryo?

Because harvesting these cells kills the living embryo, which is a human offspring in the first eight weeks from conception. The embryo, if nurtured and protected, will develop to be a friend, neighbor or family member that will live for several decades. The Church opposes the direct destruction of human life for any purpose, including research.

If some human embryos will remain in frozen storage and ultimately be discarded anyway, why is it wrong to try to get some good out of them?

In the end we will all die anyway, but that gives no one a right to kill us. In any case, these embryos will not die because they are inherently unable to survive, but because others are choosing to hand them over for destructive research instead of letting them implant in their mother's womb. One wrong choice does not justify an additional wrong choice to kill them for research, much less a choice to make taxpayers support such destruction.

Haven't doctors, scientists and commentators said that embryonic stem cell research will lead to the cure of many diseases?

Some have made this claim, but in fact this is largely speculation. Embryonic stem cells have never treated a human patient, and animal trials suggest that they are too genetically unstable and too likely to form lethal tumors to be used for treatment any time soon. Years ago it was said that stem cells from embryos would be the most useful because they are so fast growing and versatile, able to make virtually any kind of cell. But those advantages become disadvantageous when these cells make tumors, creating a condition worse than the disease.

Is the Church telling us to choose the lives of embryos over the lives of suffering patients?

No. The Church is calling us to respect both, without discrimination. We must help those who are suffering, but we may not use a good end to justify an evil means. Moreover, treatments that do not require destroying any human life are at least as promising—they are already healing some conditions, and are far closer to healing other conditions than any approach using embryonic stem cells. The choice is not between science and ethics, but between science that is ethically responsible and science that is not.

What is human cloning and how is it related to stem cell research?

In human cloning, the DNA from the nucleus of a person's body cell is inserted into an egg whose own genetic material has been removed, and the egg is then stimulated to begin embryonic development. The resulting cloned embryo would genetically be an almost identical twin to the person supplying the body cell. This research overlaps with the stem cell issue. That is, human cloning might be done to create an embryo who will be destroyed to provide stem cells genetically matched to a patient, so the cells will not be rejected as foreign tissue.

Why does the Church oppose human cloning?

Cloning is a depersonalized way to reproduce, in which human beings are manufactured in the laboratory to preset specifications. It is not a worthy way to bring a new human being into the world. When done for stem cell research, it involves the moral wrong of all embryonic stem cell research (destroying an innocent human life for possible benefit to others) plus an additional wrong: It creates human beings solely in order to kill them for their cells. This is the ultimate reduction of a human being to an instrument of other people's wishes.

Does opposition to cloning and embryonic stem cell research come only from one theological or political point of view?

No. Serious moral concerns about these practices have been raised by a wide array of both religious and secular groups, including some who disagree with the Catholic Church about human life. Michigan's human cloning ban, supported by the Church, passed with overwhelming bipartisan majorities. Many other countries (including Canada, Germany, France, Australia and Norway) have passed similar bans. The United Nations has passed a resolution calling for a world wide cloning ban. Opposition to the idea of treating early human life as a mere object or commodity in the laboratory transcends religious and political divisions.

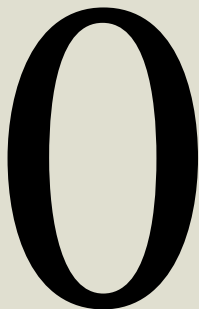
Has research using adult stem cells ever accomplished anything?

Thousands of lives have been saved by adult stem cells—most often in the form of “bone marrow transplants” for leukemia and other conditions (where the active ingredient in the bone marrow is stem cells). Today, adult stem cells have been used to help people with Parkinson's disease, spinal cord injury, sickle-cell anemia, heart damage, corneal damage, and dozens of other conditions. The danger is that this progress toward cures will be halted or slowed by campaigns that divert attention and resources toward embryonic stem cell research.

Medical Conditions Assisted by Adult Stem Cell Research in Human Patients²

Cancers	19 Renal Cell Carcinoma	Cardiovascular	57 Thalassemia
1 Brain Cancer	20 Soft Tissue Sarcoma	43 Acute Heart Damage	58 Primary Amyloidosis
2 Retinoblastoma	21 Various Solid Tumors	44 Chronic Coronary Artery Disease	59 Diamond Blackfan Anemia
3 Ovarian Cancer	22 Ewing's Sarcoma		60 Fanconi's Anemia
4 Skin Cancer: Merkel Cell Carcinoma	23 Waldenstrom's Macroglobulinemia	Ocular	61 Chronic Epstein-Barr Infection
5 Testicular Cancer	24 Hemophagocytic Lymphohistiocytosis	45 Corneal Regeneration	
6 Tumors Abdominal Organs Lymphoma	25 Poems Syndrome	Immunodeficiencies	Wounds & Injuries
7 Non-Hodgkin's Lymphoma	26 Myelofibrosis	46 Severe Combined Immunodeficiency Syndrome	62 Limb Gangrene
8 Hodgkin's Lymphoma	Auto-Immune Diseases	47 X-Linked Lymphoproliferative Syndrome	63 Surface Wound Healing
9 Acute Lymphoblastic Leukemia	27 Diabetes Type I (Juvenile)	48 X-Linked Hyperimmunoglobulin M Syndrome	64 Jawbone Replacement
10 Acute Myelogenous Leukemia	28 Systemic Lupus		65 Skull Bone Repair
11 Chronic Myelogenous Leukemia	29 Sjogren's Syndrome	Neural Degenerative Diseases & Injuries	Other Metabolic Disorders
12 Juvenile Myelomonocytic Leukemia	30 Myasthenia	49 Parkinson's Disease	66 Hurler's Syndrome
13 Chronic Myelomonocytic Leukemia	31 Autoimmune Cytopenia	50 Spinal Cord Injury	67 Osteogenesis Imperfecta
14 Cancer of the Lymph Nodes: Angioimmunoblastic Lymphadenopathy	32 Scleromyxedema	51 Stroke Damage	68 Krabbe Leukodystrophy
15 Multiple Myeloma	33 Scleroderma	Anemias & Other Blood Conditions	69 Osteopetrosis
16 Myelodysplasia	34 Crohn's Disease	52 Sickle Cell Anemia	70 Cerebral X-Linked Adrenoleukodystrophy
17 Breast Cancer	35 Behcet's Disease	53 Sideroblastic Anemia	Liver Disease
18 Neuroblastoma	36 Rheumatoid Arthritis	54 Aplastic Anemia	71 Chronic Liver Failure
	37 Juvenile Arthritis	55 Red Cell Aplasia	72 Liver Cirrhosis
	38 Multiple Sclerosis	56 Amegakaryocytic Thrombocytopenia	Bladder Disease
	39 Polychondritis		73 End-Stage Bladder Disease
	40 Systemic Vasculitis		
	41 Alopecia Universalis		
	42 Buerger's Disease		

Medical Conditions Assisted by Embryonic Stem Cell Research in Human Patients



Adult stem cell research is already helping the sick today, while offering still greater hope for the future. Not only is embryo destructive research morally wrong, it has not cured anyone of anything. The reality is we can support the science of stem cells by finding cures **and** protecting life. In the words of Pope John Paul II, "scientific research in the field of genetics needs to be encouraged and promoted, but, like every other human activity, it can never be exempt from moral imperatives; research using adult stem cells, moreover, offers the promise of considerable success."³

Sources and Resources

1. United States Conference of Catholic Bishops, "Stem Cell Research and Human Cloning: Questions and Answers."
2. Do No Harm: The Coalition of Americans for Research Ethics. www.stemcellresearch.org. Accessed July 2007
3. His Holiness Pope John Paul II. Address to the Diplomatic Corps of the Holy See. 10 January 2005



- **Michigan Catholic Conference**
www.micatholicconference.org
- **United States Conference of Catholic Bishops Pro-Life Office**
www.usccb.org/prolife
- **Do No Harm: The Coalition of Americans for Research Ethics**
www.stemcellresearch.org
- **National Catholic Bioethics Center**
www.ncbcenter.org
- **Hands Off Our Ovaries**
www.handsoffourovary.com

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