

# Amniotic Fluid: A New Source of Stem Cells

## What are Stem Cells?

Stem cells are the basic building blocks of physiological tissue: they are cells that are not yet differentiated into specific types of tissue. Through normal development, they will become every type of tissue in the human body. They can also be transformed in the lab into needed tissues (for example, neurological or cardiovascular tissue).

## Types of Stem Cells

Embryonic stem cells are extracted from a human embryo at one week old and are made up of about 100 cells. At this stage, embryonic stem cells have not yet differentiated into specific tissues or organs. These undifferentiated cells are pluripotent, meaning that they have the potential to become any type of tissue. While thought to be versatile, they are not very stable: in some cases, they have developed into tumors. When stem cells are culled from a human embryo, that nascent member of our human family is destroyed. (N.B. Embryonic stem cells come from two sources—the human embryos created through cloning and the embryos created for *in vitro* fertilization.)

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Adult stem cells can be taken from myriad sources: umbilical cord blood, placentas, skin, bone marrow, and more. Adult stem cells are multipotent, meaning that they have the potential to become many types of tissue. Because adult stem cells are somewhat differentiated, their growth is more manageable. Even scientists who favor embryonic stem cell research concur that adult stem cells roam the body seeking to repair or replace damaged cells. When adult stem cells are obtained for scientific research or medical therapies, no innocent human life is taken.



## Amniotic Stem Cells

Amniotic stem cells are proving to be yet another exciting alternative to embryonic stem cells. The amniotic stem cells seem to be pluripotent (like embryonic stem cells) but also remain stable (like adult stem cells). Researchers at Wake Forest University and Harvard University have been able to transform these amniotic stem cells into brain, liver, and bone tissue. Additionally, if the stem cells are used on the same baby from whom they came, there is no risk of cell-rejection.

Dr. Anthony Atala, head of Wake Forest's regenerative medicine institute and senior researcher on the project, expressed his excitement: "Our hope is that these cells will provide a valuable resource for tissue repair and for engineered organs as well."

## The Morality of Stem Cell Research

Embryonic stem cell research (ESCR) is not ethical because the process of

acquiring them necessarily causes the destruction of an innocent human life. ESCR also involves experimenting on a young human without consent, which is never morally permissible. This is why Pro-Life advocates can never support ESCR.

Amniotic stem cells are obtained through amniocentesis, which does carry a 1% risk of death for the baby. It is therefore not preferable to adult stem cell research, which carries absolutely no risk of harm or death.

Dr. David Prentice, an internationally recognized expert on stem cell research and cloning, shared his response to this research with National Right to Life:

This is exciting news from the scientists at Wake Forest. These adult-type stem cells from amniotic fluid and placenta (afterbirth) have all the positives scientists claim to want from stem cells—flexibility to make different tissues, easy and long-term growth in the lab, no tumors—without the negatives associated with embryonic stem cells. There is no rational reason to pursue embryo destruction for stem cells; those who still want embryo research are interested in politics, not patients.

This information has been provided by the Texas Right to Life Educational Fund. For more information, contact us at the following address:



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