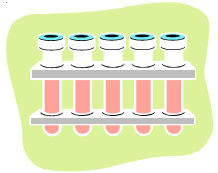


Questions & Answers Regarding Stem Cells and Cloned Embryos

Q What is an embryo?

An embryo is the earliest form of human life. Naturally, an embryo is created when sperm and egg meet and unite within a woman's body. In the 1970s scientists perfected the technique of fertilizing a woman's egg with selected sperm



in the laboratory (in vitro fertilization), and then implanting the resulting embryo into a woman's uterus. The first

child born of this procedure was Louise Brown in 1978. Since then, thousands of children have been so conceived and born. In addition, thousands of embryos artificially produced have been held in frozen suspension. These embryos have been referred to as "spare" and have been sought by scientists for purposes of experimentation.

Q What are stem cells?

Stem cells are found in humans at all stages of their lives—embryo through adulthood—as well as in umbilical cords and placentas. Non-embryonic, also called adult stem cells, are multi-or pluripotent meaning that they may become many kinds of human tissue. Stem cells taken from embryos are "totipotent," meaning that they may become any one of the body's different kinds of tissue.

Q What is the controversy regarding stem cells?

Experimentation with stem cells is very attractive to scientists because of the possible cures for victims of juvenile diabetes, Alzheimer's disease, Parkinson's disease, sickle cell anemia, and spinal cord injury. To date, the only successful therapies have been derived from pluripotent adult stem cells and cord blood stem cells. However, scientists envision even more possibilities in using the totipotent embryonic stem cells. Herein lies the moral problem because removing stem cells from embryos destroys them.



Q What is cloning?

Somatic cell nuclear transfer is the scientific term for cloning. The process is one in which the nucleus of a mammalian egg is removed and replaced with the nucleus of a body (somatic) cell of another mammal (donor), following which a jolt of electrical current is applied to the reconstituted egg to begin cell division. If the process is a success, the resulting embryo is a clone of the donor.

Q What is the difference between "reproductive" and "therapeutic" cloning?

There is no difference in the technological procedure. The difference is in the disposition of the

resulting clone. In the first case, the clone is implanted in a uterus; in the second case, the clone is destroyed for its stem cells or for other research purposes.

Q Have scientists actually produced a clone ?

Dolly, the sheep, was the first successful mammalian clone brought to term. There have been no human clones born, and only one verifiable human cloned embryo. That single embryo was produced in April 2004 by scientists in South Korea after numerous tries that involved using 242 human eggs.

Q Why do scientists want to produce cloned human embryos?

Although scientists have access to "spare" embryos from which to extract stem cells, those cells are useful only for "practice." Scientists know that to overcome the problem of tissue rejection any successful therapy will need to be developed from the stem cells of an embryo specifically cloned to match the individual seeking the cure.

Q Is a cloned embryo really human?

Even though a cloned embryo may come into existence without conception, it will be a human embryo, and we must assume that it is due the same respect as an embryo resulting from the union of an egg and a sperm.

Q How can Church teaching help us understand this?

A The following statements come from Vatican documents and the *Catechism* of the Catholic Church:

“The inalienable rights of the person must be recognized and respected by civil society and the political authority...These human rights...belong to human nature and are inherent in the person by virtue of the creative act from which the person took his origin. Among such fundamental rights one should mention in this regard every human being's right to life and physical integrity from the moment of conception until death.”

—*Donum vitae III*, Congregation for the Doctrine of the Faith, Vatican, February 22, 1987.

“Since it must be treated from conception as a person, the embryo must be defended in its integrity, cared for, and healed, as far as possible, like any other human being. (*Catechism of the Catholic Church*, 1994.)

Q What is the stance of the California Catholic Common Good Foundation regarding stem cells and cloning?

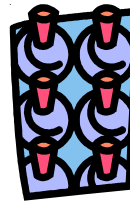
A We support non-embryonic stem cell research and note that the only demonstrable results from stem cell research are from adult and cord blood stem cells.

We hold that although scientists may wish to experiment in the hope of finding cures for a number of human diseases and injuries, it is society's prerogative and duty to set the parameters for that research.

We further hold that public policy should be developed by taking into consideration both ethical concerns and the common good.

We oppose the destruction of human embryos for scientific research.

We oppose the cloning of human embryos whether with the intent of creating a human child or with the intent of destroying them by extracting their stem cells.



—*Prepared by the Catholic Common Good Foundation of California, 1119 K Street, 2nd Floor, Sacramento, CA 95814, (916) 443-4851*

Questions & Answers

about

Stem Cells and Cloned Embryos

