

## Stem Cell and Cloning Glossary

**Adult Stem Cell:** A stem cell from organs and tissues, usually after birth (including umbilical cord and placenta), that can renew itself and transform into other specialized cell types.

**Assisted reproductive technology:** Fertility treatments that involve a laboratory handling eggs or embryos, such as in vitro fertilization.

**Blastocyst:** Early stage of embryo, approximately 5-7 days after conception (50-250 cells.)

**Cloning:** Creation of an animal or person that derives its genes from a single other individual; “asexual reproduction”. Creating a copy that is virtually identical to the original (can be done with molecules, cells, and whole organisms.)

**Chromosomes:** Contain genes, working stretches of DNA that carry the genetic code for specific proteins. Normal human cells contain 46 chromosomes; mature normal human gametes have 23 chromosomes.

**Differentiation:** The process by which early unspecified cells become specialized cells such as heart, liver, muscle, or brain tissue.

**DNA:** DeoxyriboNucleic Acid. The genetic material that contains the instructions for making an entire organism.

**Embryo:** The earliest stage of human development, from the single cell zygote up to about 8 weeks.

**Embryonic germ cell:** A cell in the embryo/fetus that normally develops into mature gametes.

**Embryonic stem cell:** A cell from the inner mass of cells of a blastocyst, with the potential to become most or all of the body tissues.

**Fetus:** The human being from 8 weeks after conception to birth.

**Gamete:** A mature germ cell (egg or sperm), which unites with another in sexual reproduction.

**Gene:** A unit of heredity that is a segment of DNA located on a specific site on a chromosome.

**In vitro:** Done outside of the body.

**In vivo:** Done within the living body.

**Multipotent:** Capable of giving rise to several specialized cells or tissues of an organism.

**Nucleus:** The core of a cell that contains the chromosomes (genetic material.)

**Pluripotent:** Capable of giving rise to most tissues of the adult body.

**“Reproductive Cloning” (Live-Birth Cloning):** All cloning is reproductive in that it creates – reproduces – a new developing human intended to be virtually identical to the cloned subject. The term “reproductive cloning” has been used to signify the implantation into a womb of a cloned embryo, in hopes of a live birth.

**Somatic cell:** Cell of the body other than a gamete (other than an egg or sperm.)

**Somatic cell nuclear transfer:** Cloning. The transfer of a cell nucleus from a body cell into an egg from which the chromosomes have been removed or inactivated; the method used for cloning of an organism. Once the transferred genome is within the egg cell and a one-cell embryo is created, the process of cloning is complete and further development of the clone can occur.

**Stem cells:** Unspecialized cells with the capacity to self-renew and to transform into other mature cell types

**“Therapeutic Cloning” (Experimental Cloning):** Creating a cloned embryo for the purpose of destroying it to harvest embryonic stem cells or tissues, or for other experimental studies.

**Tissue culture or cell culture:** Growth of cells or tissues in a laboratory dish for experimental research.

**Totipotent:** Capable of giving rise to all tissues and organs, including placenta.

**Zygote:** A one-cell embryo. Even at this stage the embryo is a human being (species *Homo sapiens*).

