

# Cloning essays examples

[Environment](#), [Animals](#)



\n[[toc title="Table of Contents"](#)]\n

\n \t

1. [Introduction](#) \n \t
2. [Types of Cloning](#) \n \t
3. [Potential Applications](#) \n \t
4. [Ethical Issues](#) \n \t
5. [Conclusion](#) \n \t
6. [Bibliography](#) \n

\n[/toc]\n \n

## **Introduction**

The technique of cloning has added new dimensions to modern science empowering biologists to devise solutions for problems which were difficult to be resolved earlier. Cloning refers to the process of creating an exact replica of a gene, cell, tissue or an organism . The copy, thus created by the process consisting of the replica of genetic material of the original is referred as a “ clone”.

## **Types of Cloning**

Cloning can be natural as well as artificial. Natural cloning process can be seen in single celled organisms such as bacteria which reproduce by asexual means and produce an exact replica of the parent bacterium . Identical twins born to humans and mammals are also an example of natural cloning .

Artificial cloning can be done in three ways, namely Gene Cloning, Therapeutic Cloning, and Reproductive Cloning . Gene Cloning refers to the process of creating replicas of genes or segments of DNA that the researcher

wishes to study . With the help of advanced cloning techniques, “ Foreign DNA” that is intended to be cloned is inserted into the genetic material of the Vector . Yeast Cells, Single celled bacteria, viruses and plasmids act as an ideal means of cloning vectors . Vectors are then kept in appropriate medium in lab conditions which help the vector to multiply thereby producing copies of the desired gene .

Therapeutic Cloning refers to cloning of embryos so as to fetch embryonic stem cells . The embryonic stem cells, thus formed which are compatible to the cloned person’s genome are used in cell and tissue replacement of the person without the fear of rejection by the person’s immune system .

Reproductive cloning refers to the creation of genetically identical organisms with the help of Somatic Cell Nuclear Transfer (SCNT) . This process involves the transfer of the nucleus of a somatic cell into an egg cell devoid of nucleus in an artificial medium . Thereafter the dividing embryo is implanted into the womb of a surrogate mother who carries the embryo till maturity . In 1997, Dolly Sheep was cloned using the technique of reproductive cloning . However, human reproductive cloning is termed illegal and banned in countries .

## **Potential Applications**

Cloned animals with human genes can be used in testing new drugs and designing new treatment strategies . A response compatible to humans can be expected from the cloned animals having human genes . Cloning can prove to be an efficient tool in conserving endangered and threatened species, thereby growing their dwindling population . Cross species organ transplantation has been made possible with Cloning . Cloning can be used

by the researchers to develop copies of animals with desired trait such as lean meat or high milk production after the approval of such products being safe from Food and Drug Administration (FDA) .

## **Ethical Issues**

Cloning has been perceived as an interruption to the nature's process by the scientists and the general public . Creating human clones with longer lives will challenge the sustainability of resources on planet earth . Therapeutic cloning requires destruction of embryos inside the test tube raising concerns regarding their ethical treatment .

## **Conclusion**

The technique of cloning has brought with itself advantages as well as disadvantages. The onus is on the researchers who should use the technique ethically and in ways which would benefit the mankind.

## **Bibliography**

Cloning. (2014, April 28). Retrieved June 13, 2014, from National Human Genome Research Institute: [http://www. genome. gov/25020028](http://www.genome.gov/25020028)

Khan, F. A. (2011). Biotechnology Fundamentals. United States of America: CRC Press.

Shaw, D. M. (2006). Genetic Mortality. Switzerland: Peter Lang.

Stanley, D. (2000). Genetic Engineering: The Cloning Debate. New York: The Rosen Publishing Group.