

Human Cloning

Another breakthrough in genetic engineering came towards the last week of November 2001, when first human embryo was cloned. For pure scientists, it was another milestone but it created a great controversy among the moralists and government leaders who feared it was a great potential for another scientific abuse and a crime on humanity. The US President Mr. George W. Bush condemned human cloning as “morally wrong”. “We should not, as a society, grow life to destroy it,” said the President. “The use of embryos to clone is wrong”.

A research company in Worcester, Massachusetts, USA- Advanced Cell Technology (ACT) — claimed during last week of November 2001 that it had achieved a breakthrough by cloning the first human embryo. A president’s Spokesman said that Mr. Bush “hopes that as a result of this first crossing of the line and the first step into a morally consequential realm of creating a life to take a life, in the name of science the senate will act on the House legislation so that the procedure is banned.” Several US States, including California have already banned human cloning and Congress is also considering such a ban. Mr. Douglas Johnson, legislative director of the Washington DC-based National right to life Committee, said: “This corporation (ACT) is creating human embryos for the sole purpose of killing them and harvesting their cells. Unless Congress acts quickly, this corporation and others will be opening human embryo farms.”

The announcement of ACT provoked angry reactions across Italy and inside the Vatican. While the Italian Health Minister Mr. Girolamo Sirchia described human cloning as a crime against humanity, in the Vatican, Archbishop Javier Lozano Barragan said that the Church opposed any form of human conception that was not born from an act of love between husband and wife. While the US, the EU, Britain and France spoke out against human cloning, prompted by fears that the world has taken a step further towards the nightmare of humans replicated in the lab. The Russian Orthodox Church branded human cloning as “murder.” Britain’s House of Lords has cleared emergency legislation which would impose ten year sentence on anyone who implanted an embryo in a woman other than one created by fertilization.

The ACT, has hailed it as a great scientific marvel. A cell from a man’s leg and cow’s egg were taken to produce a human embryo. The DNA from cow’s egg was removed and replaced with human DNA. The new cell was then chemically

persuaded to behave like a new embryo and start dividing. They let it develop for twelve days before destroying it.

What is a clone? Is a question to be answered here? A clone is a group of genetically identical cells. For example, tumors are clones of cells inside an organism because they consist of many replica of one mutated cell. Another type of clone is made up of groups of identical structures that contain genetic material, such as mitochondria and chloroplasts. Some of these structures, called plasmids, are found in some bacteria and yeasts. Techniques of genetic engineering enable scientists to combine an animal or plant gene with geneticists can produce many identical copies of the gene.

The term also refers to a group of organisms that are genetically identical. Most such clones result from a sexual reproduction, a process in which a new organism develops from only one parent. Thus, all the off springs of a single parent form a clone.

Single-celled organisms, such as bacteria, protozoa, and yeast, usually reproduce asexually. Clones of these organisms are useful in research. For example, various drugs and other compounds can be tested on bacterial clones. All the test bacteria have the same genetic makeup. Therefore, any differences in effectiveness among the different compounds result from the compounds themselves and not from the bacteria.

In sexual reproduction, the offspring's gets half its genes from each parent. In cloning, the embryo gets all genes from one individual. The ban on making babies cloned from adults or creating embryos for medical research has already come under fire from US scientists who say the threat of imprisonment and fines for anyone carrying out such work would force them move abroad.

The researchers of ACT say that they hope to develop genetically compatible replacement cells for patients with a range of illness and not to clone humans. ACT says that their experiment is aimed at aiding stems cell research to treat a wide range of diseases, providing hope for people with spinal injuries, heart diseases and other hope of people with spinal injuries, heart diseases and other ailments. According to Dr. Robert P. Lanza, one of the researchers at ACT the latest experiment "sets the pace for human therapeutic cloning as a potentially limitless source of immense-compatible cells for tissue engineering and transplantation medicine." Mr. Michael West said they had no interest in transplanting such early embryos into a woman's womb to give to a cloned human being.

Michael West said: "If human cells behave as animal cells in previous studies, we may have found a means of rebuilding the lifespan of cells at the same time. This would allow us to supply young cells of any kind, identical to the patient that could be used to address age-related diseases."

The transfer of cloned embryos has worked in cows, sheep, goat's mice and pigs, while ongoing attempts have failed so far with the rabbit, rat, cat dog, monkey and horse. It is also believed that many cloned animals have subtle brain defects or other problems that do mean little in animals, but could be devastating in humans.

The controversy on the issue of human cloning between those who oppose it-the moralists, and the researchers is quite sharp and well defined. Those who oppose human cloning on moral grounds argue sharply "an embryo at any stage of development is a human life, worthy of protection, and any kind of research that entails destroying an embryo is immoral, no matter how worthy the intent might be. It involves using people as means: it turns human life into a commodity and fosters a culture of dehumanization. The antiroyalists, on the other hand, are equally frank and forthright. They call it cellular DNA remodeling. By studying cloning, scientists hope to figure out how to take a full grown adult cell, restart the clock and transform it into to take a full-grown adult cell, restart the clock and transform it into an entirely new tissue. Then when you have heart tissue and repair all the damaged parts of the heart with new, healthy cells. Such direct remodeling could heal fracture of the bone, trauma, burns, and kidney malfunction and so on.

Scientists at ACT claimed that the main purpose of experimenting on human cloning was just to use it as aid to promote stem cells research to treat different diseases. What are these stem cells and how are they different from other cells in the human body? These are capable of developing into any of more than 200 cells types that make up the human body. Stem cells with this unique property come from embryos and fetal tissue. Embryonic stem cells are basic building blocks for all the body cell types. When developed, these cells can get diverted into different pathways and transform themselves into heart, muscle, brain, skin and other tissues. The object is to direct this transformation into a desired pathway so that they can make cells for use in treating various human disorders like Parkinson disease, heart ailments, diabetes and several other maladies. This can also open up possibilities of cell transplant solutions for many diseases-from growing insulin producing cells for diabetics to dopamine producing neurons for those suffering from the Parkinson disease.

In August 2001, the US President, Mr. George W. Bush announced his very controversial stem cell research initiative. A group of researchers headed by James Thomson of the University of Wisconsin and led by John Gearhart at the Johns Hopkins University School of Medicine made tremendous progress in stem cells research, triggering such research in other part of the world including India. The National Centre for Biological Sciences, Bangalore and the Tata Institute of Fundamental Research are two leading Indian entities that promote stem cell research in India.

Scientist re also talking of designer babies. The marriage of cloning and in vitro fertilization techniques makes it theoretically possible to genetically engineer our children. Genes that offer a benefit-say, added height or intelligence could be incorporated into embryos. Defective genes that trigger a diseases or disability such as cystic fibrosis or alcoholism – could be disarmed.

The protagonists of human cloning could come with any number of compulsive factors as to how cloning could take modern society forward: a godsend for sterile couples and a panacea for several diseases. But making has been witness to an overriding abuse of diseases. But making has been witness to an overriding abuse of scientific discoveries. We have seen the proliferation of weapons of mass destruction and the specter of germ and chemical carfare. The slow change of sex ratio because of female feticide perpetrated by parents and clinics through sex determination tests is one more abuse of science. The world can ill afford human cloning, for it will tear the society into pieces.