

Abstract

Germ-line human genetic engineering is the process of modifying a person's genotype with the intentions of making a selection of the phenotype of a new born or even creating change on the already available phenotype of either a child or an adult. Human genetic engineering has the assumption of healing the genetic diseases such as cystic fibrosis and developing or raising the immunity of individuals to viruses. Research shows that genetic engineering may be used to make changes in the physical appearance of a person, metabolism, and also make improvements to mental faculties such as memory and intelligence. However, these changes are seen to have lower priority to individuals and thus only limited to the fictions made by the scientists. Human genetic engineering was first performed in 1990 on individuals who were ailing from severe combined immunodeficiency. However, real success for the attempts came in 2000 with this patients being able to have a functional immune system. From the research, it was noted that germ line therapy poses ethical issues and many people are against its use in all areas of treatment. Most of its opponents cite ethical considerations, even though it can treat or cure certain genetic diseases.

Problem statement

Germ-line human genetic engineering is the process of modifying a person's genotype with the intentions of making a selection of the phenotype of a new born or even creating change on the already available phenotype of either a child or an adult. The main problem of this research is the use of genetic engineering in curing, treating, and making human enhancements. Therefore, this research aims at discovering whether human germ line genetic engineering is a moral /ethical or unethical problem.

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changes in the physical appearance of a person, metabolism, and also make improvements to mental faculties such as memory and intelligence. However, these changes are seen to be having lower priority to individuals and thus only limited to the fictions made by the scientists. Human genetic engineering was first performed in 1990 on individuals who were ailing from severe combined immunodeficiency, thus the first therapy succeeded in 2000 with these patients being able to have a functional immune system. However, the trials had to be put to an end because it was later discovered that about a quarter of the patients whom these trials were carried out on encountered problems like leukemia. The cause of leukemia is attributed to an act of inserting the gene carrying retrovirus close to an oncogene. Therefore, researchers are working on correcting that problem without tampering with the oncogene.

Despite the discontent with its usage, human genetic engineering is still being used in infertile women to a small extent so that they get a chance to have children of their own. These are women who have problems with their mitochondria, thus eggs free from any deficiency are removed from a healthy mother and then used in this process. Children made from this process possess information from two mothers but one father. Therefore, changes developed are germ-line changes and are most likely to be transferred down from one generation to another, and, hence a permanent change to the participant human genome. There have been sudden illustrations of gene alteration performed on mice and other types of animals, though trying it on human is always considered to be limited. In some cases, changes are normally brought by eliminating genetic material from one organism and taking them into another different species. Therefore, germ line engineering requires making of changes in the genes in eggs, sperm or young embryos. This type of engineering is transferable from generation to generation.

Negative and Positive genetic engineering

Negative genetic engineering is the process that involves treating and curing problems that occur as a result of genetic disorders. One way to perform such a treatment is through performing gene therapy. Genetic code in individuals like autism leads to genetic disorders. When this occurs, genes may react in a way that is not favorable, which may only lead to more complications. Gene therapy is mainly carried out so that a non-pathogenic virus may be used to put into DNA a better copy of the gene into cells of the healthy living people. This would thus lead to modified cells dividing up themselves as usual and every divided cell would produce cells that describe or portray the required characters. The outcome of the modification process would be that, each individual is enabled to pose or have the ability to portray the characters that were previously lacking. Therefore, research shows that, this type of genetic engineering may assist in reducing or even eliminating many diseases like cystic fibrosis, diabetes, and other diseases related to genetic (Nediljko, 2006).

Positive genetic engineering or enhancement

This process involves use of potential targets in engineering modification processes that enables it to solve or cure medical conditions. These potential targets include growing old and dying. Positive genetic engineering may be used to transform individual's genome that could later help people to redevelop limbs and other body organs such as the much complicated spinal cord. This process is assumed to be used to assist individuals become more energetic, act faster, intelligently, as well as to raise the capacity of the lungs. For instance, in cases where a gene is available in nature, it could be transferred into a human cell. There is a vital difference between the use of genetic techniques to treat and cure people experiencing such genetic problems, and making those who are fine and healthy more superior to the average. However, though the genetic engineering could be performed

to improve people's life in general, the results show that it cannot be done without interfering with other body organs. Such actions therefore raise the question of ethics in its performance. This is because each cell in human body has its own task to perform, and changing or transferring one cell to perform a different duty may not only affect that one task assigned to it, but may as well interfere with other various tasks.

Who has the right to decide on their genetic code? Fetal rights, Parental rights, Government rights

Parents have the right to decide on their genetic code and are liable in damages to their children born with defects. If a medical professional warns the significant others (parents, relatives and friends) of the danger of carrying out genetic engineering on their patient, the latter have the discretion to overlook the professional's recommendations. For example, a case may occur where medical professional's advice is ignored by a parent of the patient such as in cases of pregnancies. The parents may insist that their daughter is allowed to conceive and carry pregnancy, despite having full knowledge that a seriously impaired infant would be born. Therefore, that conscious choice would provide an intervention as of proximate cause to preclude liability. Biologically, the woman carrying the viable fetal being has the responsibility to protect the unborn child because it's completely relying on her for its nourishment and preservation. In this regard, the pregnant mother has no choice but to refrain from otherwise private behavior that is potentially harmful or threatening to the child's preservation. This means that, for the pregnant woman to act otherwise and participate in behaviors harmful to unborn child's preservation would be equivalent to possessing full control over its life and death. In case the pregnant woman fails to be responsible for her pregnancy, the government has a right to intervene by imposing special penalties and restrictions on the pregnant woman's actions in order to promote asserted interests in the fetus would, if left unchecked, enable the government to dictate how the mother to be lives her life. Therefore, parents have the right to decide on their genetic code in cases where complications of certain genetic diseases is expected, and the only way out is through genetic engineering (Sherlock, 2004).

Can genetic germ line engineering be used to cure, treat or used in human enhancement?

Genetic germ line engineering can be used to cure, treat or used in human enhancement to a small extent in that, in case a person has a problem with the lungs due to defective genes in the lung cells, it is possible for the problem to be fixed and the person be healed and cured from the lung disease. This is done by the physician through changing the genes that exist in living cells. The process involves inserting the desired gene into a virus like organism that is permitted to pass through into the cells, which puts the new gene into the cell alongside the old one. However, to a large extent, genetic germ line engineering cannot be used in human enhancement because it's most likely to lead to a dystopic human future. Although it may be useful in reducing genetic diseases, it may as well be used in a manner that is against the societal ethical standards. Human genetic germ line engineering may result into having children who have no clear identity since they neither have a real father nor a real mother, which create some inconveniences in someone's social life. It may also lead to disruption of the stable unity of the human species that is the only one survival of a number of hominid species (Jon, 2003).

Overall, this method stays more on unethical side, and particularly the germ line gene therapy, which involves the modification of the cells that are used in the reproductive system. This therapy transforms sperm cells or the ova cells. Germ line therapy poses various ethical problems and many people are against its use in all areas because its use is a general moral issue to human beings.

Though some people are encouraging the practice of germ line therapy in humans so that some diseases may be reduced or eliminated, others think that its going against God's work and may lead to many complicated issues in the future such as designing children and leaving out certain important normal characters in individuals.

Conclusion

Germ-line human genetic engineering is the process of modifying a person's genotype with the intentions of making a selection of the phenotype of a new born or even creating change on the already available phenotype of either a child or an adult. Human genetic engineering has the assumption of healing the genetic diseases such as cystic fibrosis and developing or raising the immunity of individuals to viruses. Research shows that, genetic engineering may be used to make changes in the physical appearance of a person, metabolism, and also make improvements to mental faculties such as memory and intelligence. This process is also assumed to be used to help individuals become stronger, active, act intelligently, and also raise the capacity of the lungs. Genetic germ line engineering can be used to treat and cure diseases only to small extent because in most cases its unethical, though the technology may eliminate certain genetic diseases and other issues in human beings.

Reference List

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