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**GENETIC ENGINEERING**

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Genetic engineering is normally taken to mean recombinant DNA technology -- the artificial addition, deletion or rearrangement of sequences of bases in DNA in order to alter the observable form and function of an organism. An organism that is generated through genetic engineering is referred to as Genetically Modified Organism (GMO).

The history of Genetic Engineering can be traced from prehistoric times with examples of cross breeding of both plants and animals examples include emergence of mules and other fox species as well as different grasses, wheat and rice varieties. However it was not until 1859, with Darwin’s first publication of the Origin of species which among other things gave extensive knowledge of breeding at the time. This and other scientific studies followed Darwin’s publication but it was not until 1953 that James Watson and Francis Crick proposed the double helix structure of DNA. This earned them the Noble Peace prize in Physiology or Medicine in 1963 for their discoveries concerning the molecular structure and of nucleic acids and its significance for information transfer in living material.

Through genetic engineering technology, different branches of medicine have come up with different therapeutic strategies for example mass production of insulin using E.coli bacteria, other hormones include somatostatin, follistim(used to treat barren women) and ant haemolytic factors done by the pharmacology industry. Immunologists have harnessed the genetic engineering technology to produce monoclonal antibodies, vaccines and human albumin. Oncologists also use this in research of different treatment therapies and in study of genetic diseases and genes. Neurologists and physicians have successful are also used gene therapy as a way of treating defective genes by replacing them with genetically engineered genes, glybera is one search treatment approved for trials in treatment of Parkinson’s disease in both US and Europe. Agriculture: by far this type of technology has been most successfully applied in agriculture especially in production of crop species which are resistant to harsh weather as well as some crop pesticides.

Ethics of genetic engineering are among the most hotly debated subjects in scientific circles throughout the world, and also among the lay people who are going to have to live with the consequences of any choices which are made by those in authority. There are many who believing that genetic engineering is either evil or that it is a godsend which can solve many of the problems which are prevalent in the modern world. However most people are somewhere in the middle of these extremes, interested by the possibilities but worried by the potential consequences.