

Genetic engineering



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Genetic Engineering The field of biology has been ever-changing starting from the first looks into the cell to the modern medicine that is experienced today. This has been made possible by the ingenuity and advances in technology. In particular, the field of genetics has seen the greatest development in research and application. Beginning with the sampling of the DNA structure by Watson and Crick, scientists have reached the point where they are able to manipulate and replicate DNA. The effect in the research of genetics has had far reaching applications in the medical field. One of the most important types of gene sequencing and replication which is done on a daily basis is the creation of insulin. Insulin is usually secreted by the pancreas in order to regulate sugar levels in the body; however in patients with diabetes, this does not occur. There are many advantages to genetic engineering in that it gives scientists greater control over the type of gene which is being encoded for. Scientists can also control the rate of production which can be accelerated unlike its natural counterparts. It works through plasmid recombinant technology. First, enzymes are used to isolate the human gene which encodes for the production of insulin. Then, this “ sticky” fragment is inserted into a plasmid, which is a circular piece of DNA in a bacterial cell. Then, the bacteria are stimulated to reproduce and they undergo mitosis, meanwhile replicating the human gene along with its own. Then, the insulin is produced by the bacteria which can be harvested and administered to the population in large quantities, quickly and efficiently (Watson 456-58). This is only one aspect in which gene manipulation technology has influenced pharmaceuticals and the daily life of diabetics. Gene technology has also been used in other applications of medicine such as in gene therapy, cancer research, and genetic counseling. All have been

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made possible by the technological advances. As further advances in medical and biological technology progress, further levels and methods of genetic manipulation and research will occur and this may enable us to eradicate many genetic disorders and ailments. Works Cited Watson, James. Recombinant DNA. 2nd ed. New York, NY: W. H. Freeman and Company, 1992. 456-58. Print.