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## Gene Therapy: Concept and Types

Gene therapy was first discovered in the mid 1970's where researchers were able to isolate certain type of genes from DNA. The term gene therapy came about in the 1980's and pushed research further. When we're born each individual are born with a set of chromosomes that the gene that codes for our appearances, personality, and long term health. When of of them genes has flaws in the DNA it can lead to many diseases. Some could be sever and some could be moderate, these include diabetes, cancer, or sickle cells anemia. By the use and development of gene therapy we can reduce or recover from these diseases before they even show their first symptoms.

There are two main type gene therapy treatment. However, they differ depending on the consequences of the patients. Somatic is the first cell gene therapy. In somatic gene therapy, the gene that does function properly are replaced by the correct sequence of the gene. Once this is done the body makes the correct protein and the genes that were causing the disease are than finally been rid of from the body. It is very important to treat enough cells so that at least certain amount of the correct protein reaches the site of action. Somatic is only given to the patient that is in need and is not passed on to the next generation. This is because any rearranging of genes happens in the somatic or non-reproductive cells.

The second type of gene therapy usually take place in the germline cells or reproductive cells. Germline therapy is usually describe as the gene therapy where the correct or the right gene is placed into the reproductive cells. Therefore, when an individual that have been given the treatment will have the right or correct gene when reproducing his or her offspring instead of abandon ones. However, unlike somatic this treatment will affect both the offspring and the parent themselves. It is also possible to place a control gene in an early stages of an embryo so when this individual is born it will already have the correct gene sequence in there body. This will only effect the embryo and the parent. One very important thing to remember or keep in mind is that germline therapy does not only effect the individual but will also effect their potential offspring as well. Therefore, germline therapy is passed on into the gene pool of future generations.

The main challenge in gene therapy is how can we get the right/ correct genetic material to the appropriate cells. There are three types of delivery systems stated by Encyclopedia Britannica online 1998. There is chemical methods, there are physical methods and there is a viral vector. The methods that have been used the most and the most accurate method is the viral vector. Modern technology has developed vectors that encapsulate therapeutic genes, for it to accurately deliver the correct gene to faulty or cells that doesn't work properly.

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