



Benefits of Gene Therapy for Treating Disease and Transforming Disease Treatment

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DESCRIPTION

Gene therapy is a novel approach to treating diseases, and its potential to revolutionize healthcare is immense. It involves using genetic material, such as Deoxyribonucleic Acid (DNA) or Ribonucleic acid (RNA) to modify the function of a cell or organism. This can be done by introducing new genes, removing or replacing existing ones, or making a change in the way existing genes are expressed. The goal of gene therapy is to correct genetic defects in order to prevent disease or improve the ability to fight off disease. There are several potential benefits that come with using gene therapy for treating diseases. By targeting specific genetic mutations associated with these diseases, scientists may be able to develop treatments that would otherwise not have been possible through conventional methods.

Types of diseases in gene therapy have been used to successfully treat certain types of cancers in clinical trials. Another type of disease that can be treated with gene therapy is genetic disorders. Genetic disorders are caused by mutations in genes or chromosomes, and they can cause a variety of symptoms ranging from mild to severe. In some cases, gene therapy can be used to replace the mutated gene with a healthy version, effectively treating the disorder. Gene therapy also has potential applications in other areas of medicine, including neurological disorders such as Parkinson's disease and Alzheimer's disease and autoimmune diseases such as lupus and rheumatoid arthritis.

Genes are the basic units of heredity that encode instructions for making proteins. These proteins are essential for many bodily functions, such as development, growth, and metabolism. When a gene becomes mutated or damaged, it can cause serious health problems. This is where gene therapy comes in; by replacing the mutated or damaged gene with a healthy one, it can restore normal body function. The regulation step helps ensure that only targeted cells receive the therapeutic benefits of this new gene while other cells are not impacted negatively by it. The use of gene therapy has already shown great promise in treating various diseases including cancer and cystic fibrosis as well as inherited

genetic disorders such as Huntington's disease and sickle cell anemia. It has also been used successfully in treating eye diseases such as *Retinitis pigmentosa* and Age-Related Macular Degeneration (AMD). While there are still many challenges ahead in perfecting this technology, researchers continue to make progress in uncovering its potential benefits for treating disease.

Clinical trials are an important part of researching any new medical treatment, as they help determine whether a therapy is safe and effective in humans. Gene therapy clinical trials involve administering gene therapy treatments to patients with specific genetic diseases or disorders in order to observe their response.

The success rate of gene therapy clinical trials varies depending on the type of disorder being treated. For instance, a small number of gene therapy trials for cancer have been completed, with some showing in treating certain types of cancer.

On the other hand, there has been more success with gene therapies for rare genetic conditions such as cystic fibrosis and hemophilia, which have seen significant improvements in patient outcomes following treatment. Overall, the success rates for gene therapy clinical trials are encouraging and suggest that this type of treatment could be used to treat a range of genetic diseases and disorders in the future.

Gene therapy is a new form of medical treatment that has the potential to revolutionize how we treat certain diseases. While it may sound like a complex concept, gene therapy is actually quite simple. It involves introducing genetic material into the body to correct an underlying genetic defect that is causing health issues. Although gene therapy has potential for healing diseases, there are risks and adverse effects to this type of treatment. Some of the most common risks associated with gene therapy include infection, inflammation, gene mutation, and even cancer. Infection is one of the most common risks associated with gene therapy. When genes are injected into the body, they can carry certain viruses or bacteria that can cause infections. In rare cases, these infections can be serious or even fatal if not treated promptly. Inflammation is another risk associated with gene

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therapy. The introduction of new genes into the body can cause an inflammatory response in some individuals which can lead to tissue damage or organ failure if left untreated. Gene mutation is another risk associated with gene therapy. If the new genes is

introduced by gene therapy are not compatible with existing genes in the body, then they could potentially alter existing genes in a way that may have negative consequences for health and wellness.