

Pharmaceutical Biotechnology: Enzyme Therapies and Recombinant DNA Technology

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Introduction

Biotechnology is a collection of technologies that capitalize on the attributes of cells, such as their manufacturing capabilities, and put biological molecules, such as DNA and proteins, to work for us. There are more than 400 biotech drug products and vaccines currently in clinical trials targeting more than 200 diseases, including various cancers, Alzheimer's disease, heart disease, diabetes, multiple sclerosis, AIDS and arthritis. Pharmaceutical Biotechnology is a discipline formed out of combination of Pharmaceutics and Biotechnology. The combination results in many advantages for mankind in terms of healthcare.

In the late 1970s, when the golden era of medical biotechnology started, the genes for proteins or polypeptides were cloned in microbial and/or animal cells and used for large scale production of these proteins in bioreactors.

Human insulin, Human and Bovine Growth Hormones, Epidermic Growth Factor (EGF), Erythropoietin (EPO), Interferons, Anti-Haemophilic Factors, Anti-Thrombotic Agents (Recombinant Streptokinase And Tissue-Plasminogen Activator – TPA), Anti-Hepatitis A And B Vaccines, etc., have been produced in this way and successfully commercialized.

Article Summary

The article summarizes the introduction of biotechnology and role of biotechnology in health care. It also summarizes the applications of enzymes in the biotechnology therapy. It also describes about the enzyme immobilization.

It also summarizes the recombinant DNA technology in biotechnology.

It also summarizes the enzyme application in various areas like Oral and inhalable enzyme therapies, Enzymes for The Treatment Of Infectious Disease, Enzymes For The Treatment Of Cancer, Prospective therapeutic Enzymes

Enzymes: Enzymes are defined as soluble, colloidal, organic catalysts which are produced by living cells but are capable of acting independently of the cells. In 1873 Berzelius recognized that ferments catalyse chemical reactions. Later they were coined as Enzymes (En= inside ,zyme = the yeast). In 1897 Edward Buchner extracted enzymes from yeast that catalyses sugars into Alcohol.

Enzymes physically kept or restricted in a specific characterized area of room with maintenance of their reactant exercises and which can be utilized over and again and persistently is named as Immobilization of Enzymes.

Recombinant DNA technology is viewed by many as the cornerstone of biotechnology. The term Recombinant DNA literally

means the joining or recombining of two pieces of DNA from two different species. Humans began to preferentially combine the genetic material of domesticated plants and animals thousands of years ago by rearing individuals with important hereditary qualities while barring others from multiplication.

Article Structure

The article was downloaded from the Elsevier which initiates with the abstract, introduction of author and description of journal and proceeds to abbreviations. It starts with introduction. It specifies headings like enzyme therapy. Endorsed Enzymes assigned as Orphans medications in the USA. Also, Figure: Remedial proteins are utilized in the treatment of an assortment of clutters and sicknesses. At that point proceeds with headings Oral and inhalable compound treatments, Proteolytic and glycolytic catalysts for treating harmed tissue, Chemicals for the treatment of irresistible Ailments, Proteins for the treatment of disease, Forthcoming remedial Enzymes,

it also included details of introduction of recombinant DNA technology, Healthcare Applications of Recombinant DNA Technology, Recombinant Human Insulin, Recombinant Blood Clotting Factor VIII, Recombinant Hepatitis B Vaccine, Diagnosis of Infection With HIV then the concludes. It was finished by enclosing details like acknowledgements, references.

The point of the article was Enzymes as medications have two essential highlights that recognize them from every single other sort of medications. To start with, compounds regularly tie and follow up on their objectives with extraordinary liking and particularity. Second, Enzymes are reactant and convert different target atoms to the ideal items. These two highlights make Enzymes explicit and intense medications that can achieve helpful organic chemistry in the body that little atoms can't. These qualities have brought about the improvement of numerous compound medications for a wide scope of disorders.

Advancement in biotechnology in the course of recent years have enabled pharmaceutical organizations to deliver more secure, less expensive proteins with improved strength and particularity. Alongside

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these advances, changes in Orphan medication laws and new activities by the FDA have been powerful in encouraging endeavors to create Enzyme drugs. This cooperative energy has beneficially affected the advancement of medications for both uncommon and regular Diseases.

For the last 10 years pharmaceutical companies producing

safe, Cheaper and quality of enzymes due to the improvements in biotechnology. From this development and New rules of FDA that are changes of orphan drug laws make changes in the development of effective enzyme drugs.

This scenario had positive report for the rare and common diseases.