REVIEW

Development Prospects of Genetic Engineering Pharmaceuticals

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1. Introduction

Since the birth of DNA recombination technology, life science has entered an unprecedented period of development. Modern biotechnology with genetic engineering as the core has been applied to various fields such as agriculture, medicine, and chemical environment. The rapid development of indium engineering technology has not only revolutionized the basic medical disciplines, but also opened up broad prospects for the development of the pharmaceutical industry. Genetic engineering technology transformation and replacement of traditional medicine based on DNA recombination technology have become important. Development direction[1], human beings have made unprecedented progress and achievements in the continuous exploration of life and the origin of life. Genetic engineering is no longer synonymous with the most advanced and cutting-edge technology in the laboratory. The advancement of science and technology is also a step forward for the products of genetic engineering. Stepping into the eyes of people, some diabetics often have insulin in their homes, and insulin is the first genetically engineered drug in humans, which has changed the problem of the high price of insulin and the difficulty of preparing it. After that, the use of genetic engineering to modify the bacteria to make it possible to synthesize antibiotics in large-scale and high-yield, and to solve the problem of high mortality of wound infections, genetic engineering is gradually changing our lives and leaving hidden dangers[2].

2. Current Status of Genetic Engineering Pharmaceuticals

The most important thing about genetic engineering technology in medicine and the wild is to change the genome of the recipient cell by recombinant DNA method to make it carry different genetic information. Through various inductions, the target gene expression is used to obtain the product we want. This method can
be convenient, fast, high-speed and effective, and large quantities of drugs could not be obtained due to material and technical problems before. The main ones are vaccines, antibodies and some physiologically active substances that are common in life.

3. Introduction to the Types of Some Genetic Engineering Pharmaceuticals

Cytokine drugs. Various cells of the body can synthesize and secrete small molecule polypeptide factors. They regulate the physiological functions of the body, participate in the proliferation, differentiation, apoptosis and function of various cells. These factors are called cells factor. According to the function of cytokines, they can be divided into 6 categories: interferon, colony stimulating factor, interleukin, tumor necrosis factor, chemokine, transforming growth factor β and growth factor [3].

Genetically engineered vaccines are vaccines that use recombinant DNA technology to clone and express protective antigen genes, and use the expressed antigen product to make the vaccine itself. Mainly include (1) genetic engineering subunit vaccine (2) genetic engineering vector vaccine (3) nucleic acid vaccine (4) gene deletion live vaccine (5) protein engineering vaccine

4. Views on Vaccines

Vaccines are one of our most common genetic engineering products. Genetic engineering vaccines are the use of recombinant DNA technology to clone and express protective antigen genes. Vaccines made from the expressed antigen products live recombinants themselves [4]. Although the scope of the SARS outbreak in 2004 was not very wide, the rate of its outbreak was very rapid. This year, 2020, the world broke out into the worst epidemic in 20 years. The new type of coronavirus has caused the world to issue fiery epidemic alerts. What is gratifying is that China has controlled the epidemic in China without an effective vaccine. The most serious area of Hubei and Wuhan has been brought under control and the blockade has been lifted in just a few months. The global new coronavirus vaccine is still available. In the intense research and development, I believe there will be good news about the success of vaccine development in the future, so that the world will not be threatened by the epidemic. Although the preparation of the vaccine has a good gospel, there will be some voices of opposition that are related to the side effects of the vaccine. Cervical cancer is one of the three major female malignancies. Vaccination can reduce human papillomavirus (HPV). However, according to reports, among the 5.5 million vaccinators in Japan, 2,000 have side effects, including 350 cases of severe symptoms such as paralysis [3]. It is because of these cases that two topics about vaccines will appear

5. The Importance of Antibiotics in Life and New Genetic Engineering Drugs

In the past two decades, it has been the fastest development in human history. Humanity has explored unprecedented levels of exploration in various fields. The level of economy, culture, technology, and medical care has made a qualitative leap. Some drugs can no longer be bought by the rich. Affordable, popular, and popular. The rise of various biopharmaceutical companies has played a vital role in the promotion of genetic engineering pharmaceuticals. Genetic engineering pharmaceuticals have changed the unity of material sources and made raw materials more extensive.

For example, the discoverer of the antibiotic penicillin, also called penicillin, British bacteriologist A. Fleming (1881-1955), was born in Rockfield, Scotland in 1881. After graduating from the Medical School of St. Mary’s Hospital in London, Fleming engaged in immunological research; later in the First World War as a military doctor, he studied wound infections. He noticed that many preservatives are more harmful to human cells than bacteria. He realized that a substance that is harmful to bacteria but not harmful to human cells is needed. After the war, Fleming returned to St. Mary’s Hospital in London to conduct bacteriological research. The story of Fleming’s two accidental discoveries in the laboratory is widely known. The first time was in 1922. Fleming, who had a cold, accidentally sneezed into a vessel for cultivating bacteria; later he noticed that in this petri dish, no bacteria were produced wherever sneezing mucus was found. With further research, Fleming discovered lysozyme, a substance found in body fluids and body tissues that can dissolve bacteria. He thought this might be the key to effective natural antibacterial agents. But soon he lost interest: experiments showed that this lysozyme only works on harmless microorganisms. In 1928, the god of luck came again. During the two weeks that Fleming was away on vacation, a kind of miraculous mold grew in an unwashed discarded petri dish. He once again observed the antibacterial effect of the mold-the bacteria covered all parts of the utensil that were not contaminated by the mold. However, the bacteria infected this time is Staphylococcus, which is a serious and sometimes fatal source of infection. It has been proven that this mold liquid can also hinder the growth of many other viral
bacteria. Penicillin is Fleming’s name after confirming that the mold is a penicillium. Although penicillin has a highly effective antibacterial effect, it is difficult to produce in large quantities, which also made penicillin expensive during World War II. But now the price of penicillin is not so scary. We can use genetic engineering techniques to cut the gene that produces penicillin with restriction enzymes to obtain the target gene, and make a large number of copies with a PCR amplification machine. We can select a suitable vector, link the target gene with the vector, introduce the vector containing the target gene into the host cell, and then induce the target gene to be expressed in the recipient cell by means of the recipient cell. The advantage can try to express the target gene efficiently in the recipient cell, and then obtain a large number of target products. However, with the increase in the production and types of antibiotics, a very bad effect is triggered, that is, the emergence of super bacteria. Because humans abuse antibiotics, the bacteria are resistant to many antibiotics, although antibiotics have a cold and a fever. Will take some drugs containing antibiotics, if multiple antibiotics are abused, super bacteria may appear. With the increasing resistance of pathogenic microorganisms and the increasing demand for personalized treatment of difficult diseases, the use of living microorganism drugs for disease treatment has attracted more and more attention. The use of modern biotechnology and synthetic biology methods to introduce synthetic genes of effector molecules with disease treatment effects into microorganisms to create living microbial drugs with targeted therapeutic effects is a frontier research field. Through genetic engineering, some microorganisms are specific to specific bacteria and should be combined with corresponding drugs, and can quickly and efficiently eliminate bacteria, and can also treat damaged areas without affecting the human body. This method is because No intervention of drugs will not enhance the expression and mutagenesis of bacterial resistance genes. This method of genetic engineering to change the DNA sequence of microorganisms does not seem to be suitable for promotion at present, but it is a promising and interesting new treatment in the future, and it will have unexpected effects on super bacteria. I think that in the future, we will use genetic engineering to tailor microbes to treat bacterial infections. Viral infections or thrombosis will be the mainstream treatment methods in the future, just like we currently use some biological specific capabilities to treat or assist doctors to treat patients. For example, doctors can use leeches to remove congestion from patients.

6. Summary and Outlook

I think that in the future, the treatment of diseases by means of genetic engineering pharmaceuticals will no longer be just ordinary drugs, but living drugs. We can assume that the technology of genetic engineering in the future is developed, we can achieve cross-species gene transfer, and we can transfer lizards Genes that can be regenerated are transferred to the cells of microorganisms through genetic engineering to express them in the host cells, and then such creatures are injected into the patient’s body. We can rescue soldiers who have lost limbs due to war or disabled people who have been disabled due to misfortune in life. I believe that genetic engineering changes the DNA of microorganisms in combination with corresponding drugs to make them specific to bacteria and viruses and eliminate them while treating the affected area. It can also treat those with innate immune system impairments, such as the current new type of coronavirus. Like the virus, although the epidemic in our country has been basically brought under control, people in other countries are still living in dire straits. The new type of coronavirus is taking away human lives all the time. If this method is used to destroy the new type of coronavirus in the body, then it can be Effective treatment of patients without antibodies to the new coronavirus, instead of maintaining vital signs and relying on the patient’s own immune system to produce antibodies for self-healing, but I think this alteration of microbial DNA to treat bacteria and viruses in the body If the patient has not been exposed to similar substances, the body contains antibodies that recognize the surface protein of microorganisms, it may be destroyed by the patient’s own immune system before the microorganisms come into contact with the diseased area. This is also a problem that this technology needs to pay attention to in the future. The genetic engineering technology is a double-edged sword. If terrorists master this technology, they will use this technology to produce biochemical weapons against specific groups of people. But for a doctor Said that this is also the best technology to prevent humans from suffering from diseases.

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