



Advancements in Recombinant Vaccine Technology for Prevention of Animal Diseases

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Description

Vaccines are an important tool for controlling infectious diseases, both in humans and animals. Recombinant vaccines, which are made by inserting a gene from a pathogen into a harmless carrier virus or bacterium, have become an increasingly popular approach for vaccine development. This is due to their potential to be safer and more effective than traditional vaccines, which use weakened or killed pathogens. One area of particular interest is the development of recombinant vaccines for livestock. Livestock play an important role in food production, and diseases that affect them can have significant economic and public health consequences. One example is Foot-and-Mouth Disease (FMD), a highly contagious viral disease that affects cloven-hoofed animals. FMD can cause severe economic losses due to the need for herd culling and restrictions on trade in affected countries. Recently, a recombinant FMD vaccine has been developed using a novel adenovirus vector. This vaccine has been shown to provide protection against multiple serotypes of FMD, suggesting that it could be a valuable tool for controlling this disease.

Another area of interest in the development of recombinant vaccines for animals is in the area of wildlife conservation. Wildlife can be vulnerable to infectious diseases, which can have devastating

effects on populations. For example, the Tasmanian devil, a marsupial found only in Tasmania, has been decimated by a transmissible facial tumor that has spread rapidly through the population. Recently, a recombinant vaccine has been developed that targets this tumor. The vaccine is based on a herpes virus that has been genetically modified to express a protein from the tumor cells. This vaccine induces an immune response and provides protection against the tumor. There has been progress in the development of recombinant vaccines for pets. One example is the recombinant Lyme disease vaccine for dogs. Lyme disease is a tick-borne disease that can cause a range of symptoms, including joint pain, fever, and fatigue. In recent years, there has been an increase in the incidence of Lyme disease in dogs. Vaccine has been developed that uses a portion of the bacteria that causes Lyme disease. It is safe and effective at preventing infection with Lyme disease.

There have been several recent advances in the development of recombinant vaccines for animals. These vaccines have the potential to be safer and more effective than traditional vaccines, and could be valuable tools for controlling infectious diseases in livestock, wildlife, and pets. Further research and development in this area could lead to additional vaccines that could have a significant impact on animal health and welfare. Vaccination is important for several reasons. They are designed to stimulate an animal's immune system to produce protective antibodies against specific pathogens, which can prevent the animal from getting sick when exposed to the pathogen. This is especially important for animals that are susceptible to certain infectious diseases, such as young animals or those with weakened immune systems. Some animal diseases can be transmitted to humans, posing a risk to public health. For example, rabies is a viral disease that can be transmitted to humans through the bite of an infected animal, and it can be fatal if left untreated. Vaccinating animals against rabies can help prevent the spread of the disease to humans. Animal diseases can have significant economic impacts, both for individual animal owners and for the livestock industry as a whole. Vaccination can reduce the incidence of disease and prevent losses due to animal deaths, decreased productivity, and trade restrictions. Overall, vaccination is a critical tool for maintaining animal health and welfare, protecting public health, and promoting economic stability in the livestock industry.

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