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Adenoviral Vector-based Vaccine for Influenza

A novel adenoviral vector vaccine delivery system offers highly effective and rapidly mass-producible protection against both pandemic and epidemic influenza viruses.

In the past, avian influenza H5N1, H7N7, and H9N2 viruses have infected humans, highlighting the ability of some avian subtypes to cross the species barrier. Such events can cause pandemic outbreaks of influenza by the emergence of an avian-human reassortant virus with the ability to spread rapidly in the human population. Our current therapies have not been effective in abolishing the spread of these diseases. Pandemic influenza viruses, such as H5N1, are less immunogenic compared to epidemic influenza viruses, such as H1N1, and therefore, subunit or inactivated whole virus vaccines for H5N1 do not provide effective protection.

Researchers at Purdue University have developed a novel strategy for combating influenza by using an adenoviral vector-based vaccine delivery system. Adenoviral vectors are known to activate innate immunity and can be administered via the mucosal or parenteral route, resulting in a strong immune rejection response. This novel method has been shown to provide effective protection against a lethal challenge with a pathogenic influenza virus. These vaccine strategies can be easily adapted to either pandemic or epidemic influenza viruses and provide effective protection to the population.

Advantages:

-Provides an effective vaccine for pandemic or epidemic influenza

-Easily mass-produce large quantities of vaccine in a timely manner

Potential Applications:

-Vaccines

TRL: 5

Technology ID

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Category

Biotechnology & Life Sciences/Cell & Gene Therapy Platforms

Pharmaceuticals/Biopharmaceuti

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Intellectual Property:

Provisional-Patent, 2005-04-11, United States | NATL-Patent, 2006-04-10, United States | EP-Patent, 2006-04-10, Germany | EP-Patent, 2006-04-10, France | PCT-Patent, 2006-04-10, WO | NATL-Patent, 2006-04-10, China | NATL-Patent, 2006-04-10, European Patent | NATL-Patent, 2006-04-10, Israel | NATL-Patent, 2006-04-10, India | NATL-Patent, 2006-04-10, Australia | NATL-Patent, 2006-04-10, Brazil | NATL-Patent, 2006-04-10, Canada | EP-Patent, 2006-04-10, United Kingdom | NATL-Patent, 2006-04-10, Republic of Korea | NATL-Patent, 2006-04-10, South Africa | NATL-Patent, 2008-08-04, Hong Kong | CON-Patent, 2009-12-23, United States | DIV-Patent, 2012-08-22, Australia | Unknown, N/A, Taiwan, Province of China

Keywords: adenoviral vector vaccine delivery system, influenza vaccine, pandemic influenza, epidemic influenza, H5N1, H1N1, innate immunity activation, mucosal administration, parenteral route, strong immune rejection response, Antivirals, Biotechnology, Drug Development, Influenza, Vaccines