Safe and Potent Vaccines against Tularemia
Tech ID: 20456 / UC Case 2009-655-0

SUMMARY

UCLA scientists have developed a method to produce a tularemia vaccine for humans and animals. The currently used vaccine, F. tularensis Live Vaccine Strain (LVS) is toxic, unstable, and poorly characterized. This new vaccine overcomes these major drawbacks.

BACKGROUND

Tularemia is a disease caused by the bacterium Francisella tularensis, one of the most infectious pathogenic bacteria known to affect both animals and humans. Although natural infections of F. tularensis have become less of a threat, the ease with which this bacterium can be manufactured and disseminated, its high infectivity, and high mortality when transmitted by the respiratory route remain a major concern. For that reason, the CDC has classified F. tularensis as a Category A bioterrorism agent. This biological agent has long been considered a potential biological weapon, and there are indications suggesting its use during World War II. It is believed that if used as a biological weapon, an aerosol release would have the greatest adverse effect resulting in a highly fatal pneumonia. To protect against potential use of this agent as a bioterrorist weapon, a safe, well-characterized, stable, and effective vaccine against F. tularensis is needed.

INNOVATION

The present innovation consists of a method for producing a vaccine, and a new vaccine for preventing tularemia in humans and animals. This vaccine utilizes a genetically defined attenuated mutant of the F. tularensis Live Vaccine Strain (LVS) to prevent Francisella tularensis infection. Unlike currently used LVS, which is not approved for general use, this new vaccine is non-toxic, stable, and well-characterized.

APPLICATIONS

- Prevent infection caused by Francisella tularensis, the agent of tularemia.

ADVANTAGES

- Non-toxic, more stable, and better characterized than LVS vaccine
- Efficacy is comparable to LVS
- Highly attenuated in comparison with its LVS parent.

STATE OF DEVELOPMENT

The new vaccine has been tested in animals.

PATENT STATUS

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CATEGORIZED AS

- Medical
- Disease: Infectious Diseases
- Therapeutics
- Vaccines
- Veterinary
- Therapeutics
- Vaccines

RELATED CASES

2009-655-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

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- Method of Producing Novel Unmarked Recombinant Vaccine Vector for Tuberculosis
- Novel Vaccines Against Tularemia
- Improved Immunization Strategy Using Recombinant BCG Vaccines
- Novel Live Recombinant Booster Vaccine against Tuberculosis
- Live Recombinant Tuberculosis Vaccine
- Nanoparticles For Specific Detection And Killing of Pathogenic Bacteria
- Safe Potent Single Platform Vaccine Against Tier 1 Select Agents and Other Pathogens