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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ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- New Recombinant Tuberculosis BCG Vaccine for Immunocompromised Patients and Others
- Recombinant Tuberculosis BCG Vaccine Elicits a Highly Protective Host Immune Response
- 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