Safe and Potent Vaccines against Tularemia

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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

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,481,024	07/09/2013	2009-655

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Safe Potent Single Platform Vaccine Against Tier 1 Select Agents and Other Pathogens
- Nanoparticles For Specific Detection And Killing of Pathogenic Bacteria

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OTHER INFORMATION

KEYWORDS

herapeutic, drug discovery, biomedical, animal/veterinary, tularemi

CATEGORIZED AS

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

RELATED CASES

2009-655-0

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