

## 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

- ▶ [Recombinant Tuberculosis BCG Vaccine Elicits a Highly Protective Host Immune Response](#)
- ▶ [Novel Live Recombinant Booster Vaccine against Tuberculosis](#)

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### INVENTORS

- ▶ Horwitz, Marcus A.

### 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

- ▶ [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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