Therapeutics & Vaccines

A novel vaccine with proven efficacy in preventing Francisella infections in fish.

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Researchers from the University of Wisconsin - Stevens Point are part of a multi-institution research team that has developed a vaccine with proven efficacy in preventing Francisella infections in fish.

Overview

The global food industry continues to search for sustainable fish protein sources. Increasingly, tilapia and other fish species have become the focus of healthy and sustainable farming methods. However, disease agents are a major threat to increased fish production, with annual economic losses currently totaling billions of dollars globally. Piscine francisellosis, caused by Francisella orientalis (also known as Francisella noatunensis subsp. orientalis (Fo), Francisella asiatica), is a highly infectious disease that affects a wide range of fish species. Mortality rates in fish contracting related bacterial infections can exceed 95%. There are currently no commercial vaccines to prevent francisellosis - and treatment options are extremely limited. Thus, an effective vaccine against Francisella-related infections in fish would have significant scientific and economic impact.

The Invention

Researchers from the University of Wisconsin - Stevens Point have collaborated with their co-inventors from several institutions to develop a recombinant vaccine that is effective at immunizing fish against Francisella-related infections. The vaccine is based on immunoproteomic approaches to identify immuno-dominant proteins in proteome of Francisella orientalis - from which a specific gene was found to stimulate a protective immune response (initially demonstrated in tilapia). In a trial testing the recombinant vaccine, immunized fish were shown to have a survival rate of over 80% after a 15-day exposure. This vaccine has the potential to prevent significant economic losses in tilapia and other fish species now farmed in high volumes globally.

Applications

- Prevent *Francisella*-related infections in fish

Key Benefits

- Reduces the risk of significant economic losses in farmed fish populations
- More effective than antibiotic treatments currently used in the farmed fish industry
- Could increase productivity of farmed fish industry globally

Stage of Development

The vaccine has been developed and shown proven efficacy.

Tech Fields

- Therapeutics & Vaccines, Diagnostics

For current licensing status, please contact Jennifer Souter at jennifer@wisys.org or (608) 316-4131