



Bath/Oral Live Recombinant *Edwardsiella* Vaccine for the Aquaculture Industry

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Inventors

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Intellectual Property Status:

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Invention Description

Fish farming generates billions of dollars of revenue, and the culture of channel catfish (*Ictalurus punctatus*) is the largest aquaculture in the U.S. The most serious bacterial pathogens affecting this industry are *Edwardsiella ictaluri* and *Flavobacterium columnare*. Losses due to these pathogens are estimated to be \$50-80 million, annually.

The current live vaccines against *E. ictaluri* and *F. columnare*, consisting of rifampicin-resistant strains, are attenuated by unknown genetic modifications and have only modest efficacy. Live recombinant vaccines, which might protect against several diseases at low cost, have not yet been designed for the aquaculture industry.

Researchers at the Biodesign Institute of Arizona State University have developed an antibiotic-sensitive bath/oral live recombinant attenuated *Edwardsiella* vaccine to prevent infections of *Edwardsiella* and *F. columnare* in catfish. This could significantly reduce the costs of catfish farming. In addition, the type of vaccine vector developed could be used against other types of pathogens as well.

Potential Applications

- Vaccine development for fish farms against pathogens.

Benefits and Advantages

- Efficient vaccine against pathogens that cause big annual loss in fish farming industry
- Potential to save \$80 million per year
- Can be a vector to develop vaccines against other fish pathogens