**Innovators:**

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**References:**

J Fish Dis. 2011 May; 34(5): 385-94  
(Virulence)

Vaccine. 2013 Oct 25;31(45):5276-80  
(Effective and stable vaccine)

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**Improved Columnaris vaccine that is stable at room temperature**

*Auburn University is seeking a licensee or development partner for a columnaris vaccine for fish.*

**Overview:** Columnaris disease is one of the most serious bacterial infections affecting the aquaculture industry today. It can affect nearly all freshwater fish and causes millions of dollars in annual losses for U.S. catfish farmers alone. Current vaccines are only moderately effective.

An improved vaccine has now been developed that provides superior protection to catfish and tilapia, and has possible applications in salmon, trout, and other farmed fresh water fish. With the aquaculture industry booming, there is a need for products that can protect against infection by this pathogen.

**Advantages:**

- **MORE EFFECTIVE** — Reduces mortality up to four times over the existing vaccine
- **STABLE STORAGE** — Stores conveniently at room temperature for up to a year
- **EASY ADMINISTRATION** — Administered using standard immersion methods

**Description:** *Flavobacterium columnare* is the causative agent of columnaris disease and exists as two genomovar, or groups, with group I being moderately virulent and group II being highly virulent. The current vaccine for columnaris disease protects against group I but not group II pathogens. To generate a more effective vaccine, a highly virulent group II isolate was used to produce a non-GMO live attenuated vaccine. In vaccine trials, this vaccine increased survival rates by 66% (Nile tilapia) and 17% (catfish) over the existing vaccine. Vaccination is currently by immersion in tanks containing the vaccine. The vaccine strain remains stable after 60 passages and is viable after storage at room temperature for at least one year.

**Status:**

- Superior protection shown in catfish (fry and fingerling stages), tilapia, and zebrafish
- Issued US Patent 9,161,972; pending applications in Brazil & Vietnam
- Ongoing studies are investigating dosing and delivery
- Available for licensing and/or joint venture or development, including funded research

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**Bacterial morphology and vaccine protection in Nile tilapia.** 

(A) Virulent columnaris strain (top) and passedage vaccine strain (bottom).  
(B) Average cumulative daily mortality after challenge with virulent columnaris.  
*Red* is fish vaccinated with Auburn strain; *Purple* is the currently sold vaccine; *Orange* is no vaccination.