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Discovery Could Lead to New Treatment Options for Ich in Freshwater Fish, Researchers Say

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Ich, or white spot disease (© 2009 The UGA College of Veterinary Medicine)A team of researchers reported on Dec.3 that they discovered the presence of two bacteria in Ichthyophthirius multifiliis, also called ich or white spot disease, a single-celled parasite that commonly attacks freshwater fish. The researchers hope the discovery can open up new avenues for treating fish infected with the parasite.

The discovery was made during an ich genome mapping project conducted by five researchers from University of Georgia's College of Veterinary Medicine, two researchers from Cornell University's College of Veterinary Medicine and one researcher from the J. Craig Venter Institute. While working to sequence the genome, the researchers discovered that the parasite harbors two apparently symbiotic intracellular bacteria: Bacteroides and Rickettsia. The researchers said the two bacteria represent new species.

“It was unexpected," said Harry Dickerson, a co-author of the study, published in the December issue of Applied and Environmental Microbiology. "It was stunning to find bacteria in ich, and it came about due to the genome sequencing.”

The researchers plan to determine if ich remains infective if the bacteria are removed. They said it could bring them a step closer to developing better ich treatment.

Ich bores into a fish's skin and gills where it destroys tissue, thus blocking the exchange of oxygen and carbon dioxide and leading to the fish’s death. No drugs or chemicals kill ich while it inhabits the fish, according to the University of Georgia. Ich only can be killed when the parasite lives in the water, so all current therapies require a cyclic re-treatment program.

“Ich occurs worldwide and is one of the most common protozoon pathogens of freshwater fish,” Dickerson said. “It easily is recognized by most aquarists, and fish farmers often are confronted with massive epizootic outbreaks to devastating economic effect.”