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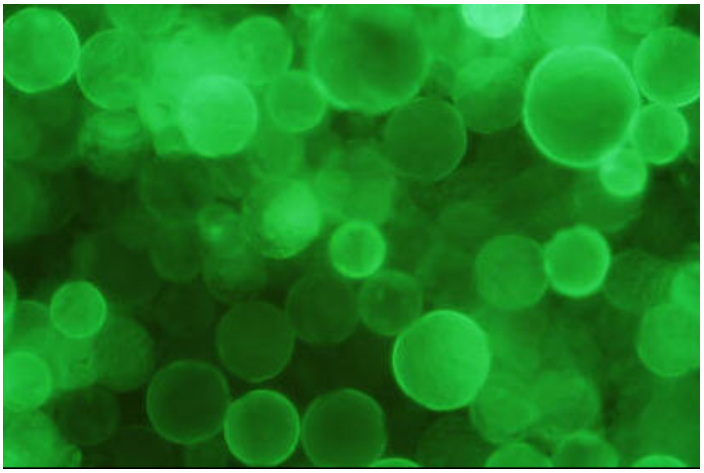
February 12, 2008

Tackling Oyster Dermo Disease

Baltimore, MD— A team led by Gerardo R. Vasta at UMBI offers new hope for recovery of the Chesapeake Bay oysters. Researchers at UMBI's Center of Marine Biotechnology (COMB) have developed the first system for introducing DNA into the parasite under laboratory conditions. This new method will not only lead to further insights into functional aspects of the parasite, but it will be, in the long term, essential for the development of new strategies for intervention.



By introducing DNA carrying a gene tagged with green fluorescent protein, researchers demonstrate the successful introduction of genetic material into the parasite cells. The cells appear bright green under the microscope, indicating proteins from the newly introduced gene. This paves the way for new understanding and future intervention in the disease-causing parasite.

Dermo disease, caused by the parasite *Perkinsus marinus,* has depleted natural and farmed oyster populations along the Atlantic and Gulf coasts of the USA. In addition to their importance as a shellfisheries resource, these filter-feeding bivalves are important components of marine and estuarine ecosystems, playing a critical role in water quality. The continuous decline in the oyster populations caused by Dermo constitutes a serious threat to the health and integrity of the coastal ecosystem, and has already had a major negative impact in the Chesapeake Bay.

Earlier work on the *Perkinsus* parasite at COMB resulted in the development of a method for culturing the parasites under laboratory conditions, and for genomic sequencing, a collaboration between UMBI and The Institute for Genomic Research (TIGR, now JCVI) in Rockville, MD. This work has been supported by The National Science Foundation (NSF) -U.S. Department of Agriculture (USDA) Microbial Genome Initiative, together with functional genomic initiatives supported by the National Oceanographic and Atmospheric Administration (NOAA).

The ability to introduce DNA sequences into the parasite in the lab makes it possible to systematically alter and study specific genes, which will accelerate the pace of this research. The new findings, co-authored by José A. Fernández-Robledo, Zhuoer Lin and Gerardo R. Vasta, were recently published in the *Molecular & Biochemical Parasitology* journal.

With research centers in Baltimore, Rockville, and College Park, UMBI, the University of Maryland Biotechnology Institute, is the newest of 13 institutions forming the University System of Maryland. UMBI has more than 60 ladder-ranked faculty and a mandate to advance the biotechnology economy while preparing a well-equipped workforce. Celebrating more than 20 years of service to Maryland and the world, UMBI is led by microbiologist and former biotechnology executive Dr. Jennie C. Hunter-Cevera. For more information visit www.umbi.umd.edu.

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