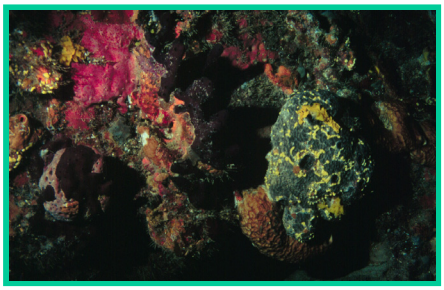
Marine Biotechnology

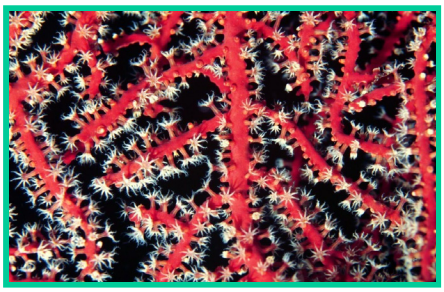
Marine biotechnology is an emerging field focused on investigating and developing technological applications of living marine organisms, their derivatives, and their bioprocesses. Products derived from marine organisms have been utilized to remediate the environment, increase food supply, develop new industrial processes and create new pharmaceuticals.



To date, examples of marine-derived pharmaceuticals include 1) an antibiotic from fungi; 2) two closely related compounds from a sponge that treat cancer and the herpes virus; and 3) a neurotoxin from a snail with painkiller properties 10,000 times more more potent than morphine and without the side effects.

NURP's Role

In 2001, NOAA's Undersea Research Program (NURP) partnered with the University of Mississippi and the University of Southern Mississippi to form the National Institute for Undersea Science and Technology (NIUST). The **Ocean Biotechnology Center and Repository** (OBCR) is a division within NIUST that broadly encompasses the field of marine biotechnology in two ways:

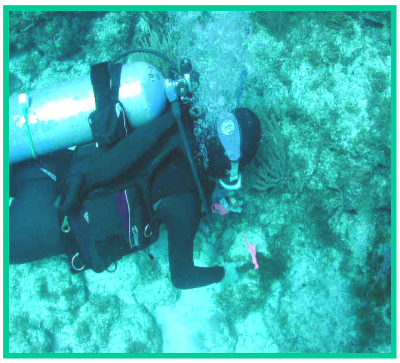


The OBCR maintains the only repository in the nation dedicated solely to the cataloging and collection of the biochemical and biomolecular products of marine organisms. OBCR currently houses over two thousand extracts derived from marine organisms, many of which have been flagged for follow-up research.

OBCR scientists conduct research to assess and develop the potential of marine organisms to 1) provide new biomedical and agrochemical compounds and 2) assist in the development of biotechnological methods that address problems associated with marine habitat management.

Addressing NOAA Priorities

NURP and NIUST are particularly committed to assessing the biotechnological and biomedical potential of U.S. coral reefs. OBCR scientists are investigating coral reef specimens from Hawaii, Alaska, Puerto Rico, Guam, Saipan, and American Samoa to address NOAA priorities of coral disease management and marine environmental health. Specific research projects include investigating the mechanisms associated with disease resistance in coral organisms and determining the environmental factors and processes that lead to disruption of their endocrine system.



Future Work

In the next two to five years, the OBCR plans to 1) expand the geographic range of its repository samples; 2) open its repository to external scientists to further collaborative research efforts; and 3) partner with regional representatives to improve marine environmental health via novel biotechnologies.

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