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New Biotechnology R&D Center Established at UNH

**One of Only Seven Such Facilities in the
U.S.**

By *[Sharon Keeler](#)*
UNH News Bureau

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DURHAM, N.H. -- A new biotechnology research and development center has been established at the University of New Hampshire, in partnership with leading pharmaceutical firms and with sponsorship from the National Science Foundation (NSF).

The Biomolecular Interaction Technologies Center (BITC) at UNH recently qualified as an NSF Industry/University Cooperative Research Center (I/UCRC), and is one of only seven biotechnology and health care sites in the United States. The program promotes collaboration between industry, academia and the government by providing seed money for initial development.

The center will bring in approximately \$400,000 each year to support research at the university. NSF funds \$70,000 annually to pay for administrative costs. After 10 years, centers are expected to become independent of NSF support.

BITC will develop advanced instruments and methods for characterizing molecular interactions, especially for large, complex molecules such as proteins and DNA. The research at UNH will enable pharmaceutical and biotechnology companies -- including Eli Lilly and Company, Pharmacia, Abbott Laboratories, ICOS Corporation and Sunesis Pharmaceuticals -- to develop new drugs more effectively and rapidly.

In addition, BITC will provide an environment in which industry researchers can collaborate with UNH students and center scientists.

"With the formation of BITC, UNH is now able to offer students broad exposure to engineering applications in molecular biology and biochemistry," says Donald Sundberg, UNH vice president for research and public service. "Students will have the opportunity to do cutting-edge research and gain engineering experience that will prepare them for a career in a number of fields. This multidisciplinary approach is available to both undergraduates and graduate students, and is what makes the program so attractive to the National Science Foundation."

The center is directed by Thomas Laue, UNH professor of biochemistry, and is based in the College of Life Sciences and Agriculture. It is staffed by faculty researchers and students from UNH and the University of Utah.

"Some of our instruments are the only ones of their kind in the world that can satisfactorily answer the questions companies have in the early stages of drug development," says Laue, adding that three of the best machinists in the world work at UNH's Institute for the Study of Earth, Oceans, and Space. "It would be cost prohibitive for companies to create their own instruments. This partnership allows the consortium members to share the costs of research and development, and helps transfer the research that is being done in an academic setting to industry."

Of the new drugs approved by the FDA in 1999, 60 percent were either proteins or molecules that interact with naturally occurring proteins. The accurate description of biomolecular interactions, says Laue, is a central element in understanding disease mechanisms and is essential for devising safe and effective pharmaceuticals.

"The characterization of these interactions is important to the pharmaceutical and biotechnology industries in the areas of drug discovery, development and formulation, and quality assurance/quality control," he says. "In each of these areas questions arise concerning the number of molecules interacting and the binding strength of their interactions.

"For drug discovery, determining the binding strength between a drug and its target is important since higher

binding strength often correlates with increased drug potency and specificity. During drug development, the mode of delivery, body clearance rates, and the effective and tolerated doses are necessary information."

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