



UNH Scientist Recognized for Effective Use of New Technology

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DURHAM, N.H. -- Heidi Geiser, a staff scientist in the University of New Hampshire's Center for Structural Biology, was presented with Boston Biomedica's (BBI) first Distinguished Scientist Award. Geiser received the award for work she has done extracting biomolecules using BBI's patented Pressure Cycling Technology (PCT).



Richard T. Schumacher, founder and member of the board of directors of Boston Biomedica, presents UNH staff scientist Heidi Geiser with the company's first Distinguished Scientist Award. Geiser received the award for work she has done extracting biomolecules using BBI's patented Pressure Cycling Technology (PCT).

“This award recognizes the best research findings generated over the past year using PCT,” said Richard T. Schumacher ’72, founder and member of the board of directors of Boston Biomedica, headquartered in West Bridgewater, Mass. “Heidi’s work is the first strong indication we’ve had that PCT has important applications in the exciting field of proteomic [protein] research. We are very proud of her achievement, and I am particularly proud that as an alumnus I could return to UNH to present her this award.”

Last spring UNH became a test site for BBI’s Barocycler NEP2017, the instrument that is the backbone of Pressure Cycling Technology. PCT is a novel process that subjects samples to alternating cycles of low and high pressure, allowing scientists to extract desired molecules from various cells and tissues that are notoriously tough to crack.

Geiser has been working in collaboration with Vernon Reinhold, the director of UNH’s Center for Structural Biology, to apply this technique to investigate the proteins, glycoproteins, and glycosylated lipids that exist in *C. elegans*, a roundworm with a cellular make-up that is, in many ways, like that of human cells.

“We’ve really appreciated being able to use PCT and the Barocycler,” said Geiser, whose project was published in the Society for Glycobiology’s journal, *Glycobiology*. “It has allowed us to extract molecules in greater quantities than before, and to discover potentially new glycoproteins — using PCT has become our standard procedure.”

Reinhold and Geiser’s work is at the forefront of the emerging fields of proteomics and glycomics—the study of molecular structure and their functional relationships are key to

developing new therapies and a healthier society.

“Being able to read the genetic code for a protein isn't enough, because so much changes after a gene is translated into a protein,” Professor Reinhold explained. “The glycosylation [adding of sugar groups] to proteins is a universal process that takes place in all life forms. In people, when this process malfunctions, it can create severe developmental problems. We believe that if we reveal how glycosylation works in a simple model like *C. elegans*, we can lay the foundation for understanding more complex models and developing therapeutic models for human disorders.”

Boston Biomedica provides products and services that have become global gold standards for ensuring the accuracy of test results for diseases such as AIDS, hepatitis, West Nile and Lyme Disease. Pressure Cycling Technology represents a new step in an additional new direction for the company.

“This partnership with UNH has been critical for BBI,” said Kevin W. Quinlan `72, BBI's president and COO. “As we develop new instruments and procedures in PCT, we will need to continue to partner with scientists who are at the frontiers of their academic fields, such as Heide Geiser, Vern Reinhold, and their colleagues.”

(Contributing writer: Dolores Leonard, UNH Publications)