

Combi Seminar

Wednesday, 4.3.24 | Foege Auditorium | 1:30

remote viewing option: <https://depts.washington.edu/gstrestrc/remote.htm>



Dr. Phil Bradley

Fred Hutchinson Cancer Center

<https://www.fredhutch.org/en/faculty-lab-directory/bradley-phil.html>

“Predicting and designing T cell receptor interactions”

Dr. Phil Bradley is a computational biologist who studies the 3-D structures of proteins, the nano-sized molecular machines that power nearly all of life’s processes. He develops software to visualize and predict how one kind of protein will interact with another protein or with molecules such as RNA and DNA, which carry genetic information. He is a leading figure in the new field of de novo protein design, in which scientists envision and build proteins unlike anything found in nature. He and colleagues at Fred Hutch and the Institute for Protein Design at the University of Washington have designed proteins that close in on themselves, forming rings that resemble tiny donuts. Their elegant, symmetrical structure may serve a host of medical applications. Dr. Bradley and colleague Dr. Barry Stoddard are working with Hutch immunotherapy researcher Dr. Stanley Riddell and vaccine expert Dr. Larry Corey to explore the use of these donut proteins as molecular backbones for therapeutics. Their experiments will test whether the modular structure of donut proteins can support and deliver multiple copies of the active biochemicals that make drugs or vaccines work, improving their performance. He continues research he began as a postdoctoral fellow at UW developing Rosetta, a world-leading software tool for designing protein structures and predicting protein interactions. Dr. Bradley is currently working on computer programs to predict how selectively and precisely proteins will bind with DNA and with protein snippets called peptides. These molecular interactions are essential for life and occur continually inside every one of the trillions of cells in our bodies.

Questions? Contact Brian Giebel at bgiebel@uw.edu or visit the Combi website at <http://www.gs.washington.edu/news/combi.htm>

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