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10:30 AM - 11:30 AM

Steele 006

**“Targeting Intrinsically Disordered Proteins and Biomolecular Condensates with
Small Molecule Drugs”**

Abstract: Intrinsically disordered proteins (IDPs), which represent ~40% of the human proteome, play crucial roles in a variety of biological pathways and biomolecular assemblies and have been implicated in many human diseases. IDPs do not fold into a well-defined three-dimensional structure under physiological conditions. Instead, they populate a dynamic conformational ensemble of rapidly interconverting structures. As a result, IDPs are extremely difficult to experimentally characterize and are largely considered “undruggable” by conventional structure-based drug design methods. Our laboratory utilizes a combination of computational and biophysical methods to characterize the molecular recognition mechanisms of intrinsically disordered proteins in atomic detail. I will discuss recent progress in our efforts to characterize the interactions of IDPs with small molecule drugs, discover more potent IDP inhibitors, and understand how small molecules modulate the stability of biomolecular condensates.

Bio: Paul Robustelli, PhD. is an assistant professor of chemistry at Dartmouth College, where his research focuses on the integration of computational and experimental methods to study dynamic and disordered proteins. Paul earned a B.A. in chemistry from Pomona College and a Ph.D. in chemistry from the University of Cambridge. Before joining the chemistry faculty at Dartmouth, Paul worked as an NSF postdoctoral fellow at Columbia University in the laboratory of Arthur Palmer III and as a scientist at D.E. Shaw Research.