



**CHEMISTRY &  
BIOCHEMISTRY**

**DATE**                      **TIME**                      **LOCATION**  
**05/09/2025 | 10:30am | COB1 110**

# **CHEMISTRY & BIOCHEMISTRY SEMINAR SERIES**

## **Protein Metamorphosis**

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### **Abstract:**

Recently, there have been significant advances into understanding the protein folding code - that is, how the amino acid sequence of a protein relates to its three-dimensional structure. However, it is known that some naturally occurring proteins can reversibly adopt two different structural states depending on their environment, including changes in both secondary and tertiary structure. Such “metamorphic” proteins play important roles in both native biological processes and disease states through their shape-shifting properties. Predicting and designing these types of proteins has remained very challenging, indicating that the folding code is still not fully understood. This talk will describe the de novo design and characterization of reversible fold-switching between some of the most common protein folds known. Engineering different environmental triggers for protein metamorphosis will be discussed, as will the underlying basis for protein shape-shifting.

### **About the Speaker:**

2006-present Professor, University of Maryland.

1998-2005 Associate Professor, University of Maryland Biotechnology Institute

1991-97 Assistant Professor, University of Maryland Biotechnology Institute.

1987-90 Postdoctoral Research Associate, Biomolecular NMR, University of Washington.

1985-87 CSIRO Postdoctoral Fellow, Biochem & Biophys, McMaster University.

1985 PhD, Chemistry, Australian National University.

1981 BSc(Hons), Chemistry, University of Adelaide.

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