

## **Adding Logic to Complex Protein Functions**

Proteins are the most versatile among the various biological building blocks. However, the strength of proteins - their versatility and specific interactions - also complicates and hinders their systematic design and engineering. Our lab has been interested in exploiting the modular nature of protein domains to design synthetic complexes that can perform new biological functions. By adding logical components into the design, protein complexes that are dynamic rather than static in nature can be created to adapt to the constantly changing cellular environments. In this presentation, I will outline several successful examples in connecting exchangeable protein domains for predicative engineering applications in (1) energy substantiality and (2) human health.