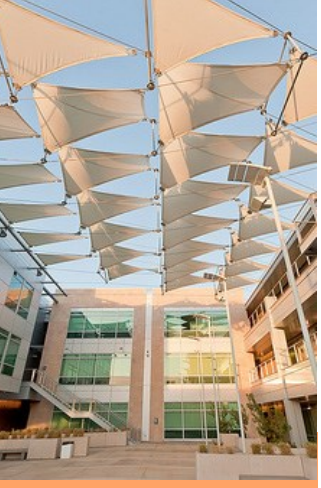

DEPARTMENT OF MECHANICAL ENGINEERING COLLOQUIUM

UNIVERSITY OF CALIFORNIA
UC RIVERSIDE

The Department of Mechanical Engineering
PRESENTS

Richard W. Roberts, Ph.D.

Professor and Chair
Department of Chemical Engineering and Material Science
University of Southern California

Friday, October 16, 2015
WCH Room 205/206
11:10-12:00PM

Targeting Cell Surface Receptors with SUPR Peptides

Abstract:
Natural peptides often have poor biostability and natural sequences cannot readily be converted into drug-like molecules without extensive medicinal chemistry. We have recently adapted mRNA display to evolve highly stable cyclic peptides while retaining function toward the intended target. To do this, we have used a combination of chemical cyclization and an expanded genetic code to create new functional peptides. These experiments resulted in a dramatically stabilized SUPR peptides (Scanning Unnatural Protease Resistant). We have used this approach to target signaling proteins and the cell surface receptor Her2. The resulting compounds have high affinity and excellent selectivity toward Her2, enabling orthogonal labeling of the receptor for imaging and therapeutic applications.

About the Speaker:
Dr. Richard W. Roberts received his Ph.D. in Biophysical Chemistry from Yale University in 1993. Dr. Robert's was a Postdoctoral Fellow at Harvard Medical School Department of Genetics/MGH Department of Molecular Biology from 1993-97. Dr. Roberts is currently Chair of the Mork Family Department of Chemical Engineering and Materials Science and a Professor of Chemistry, Chemical Engineering, and Molecular and Computational Biology at the University of Southern California. Research in the Roberts lab focuses on the protein synthesis machinery both as a tool for polypeptide design and as a target that can be probed using chemical means. A key aspect of his lab's work is peptide and protein design using in vitro selection experiments.