



**CHEMISTRY &
BIOCHEMISTRY**

DATE 03/13/2026 | **TIME** 10:30am | **LOCATION** SSB 170

CHEMISTRY & BIOCHEMISTRY SEMINAR SERIES: Helical Hybrid Peptides in Drug Delivery Systems

Abstract:

Protein folding underlies the emergence of sequence-encoded function, yet most short peptides lack stable secondary structure. I will demonstrate that incorporation of collagen-mimetic sequences (COLL) into designer peptides induces controlled self-assembly what enables new drug delivery strategies. COLL integration significantly reduces cytotoxicity, enhances proteolytic stability, and increases bioavailability. These assemblies efficiently deliver small-molecule therapeutics and form higher-order nanostructures (~10 nm) for siRNA delivery. Assembly behavior is programmable through peptide sequence design, allowing thermoresponsive, receptor-independent targeted cell selection. Furthermore, collagen sequence engineering enables heterotrimer formation, providing a platform for combination drug delivery.



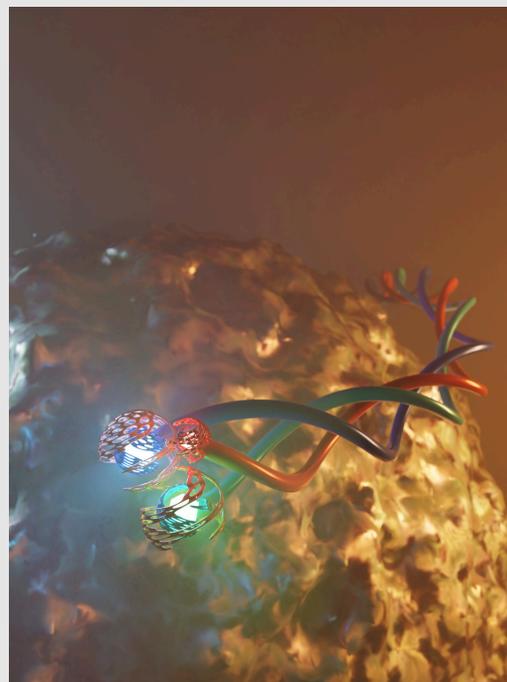
Katarzyna Slowinska

Professor

Department of Chemistry and Biochemistry
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About the Speaker:

Dr. Slowinska was born in Poland. She graduated from Warsaw University (advisor Dr. Bilewicz) Summa cum Laude studying supramolecular complexes of polycyclic amines. She received PhD from UC Berkeley (advisor Dr. Majda) where she developed a new electroanalytical technique (ETOF with potentiometric sensing). In 2003 she worked at GE Global Research Center in Niskayuna in Advanced Lighting Materials group developing OLEDs. In 2004 she joined the faculty at CSU Long Beach, where she is currently a professor and graduate advisor at the Chemistry and Biochemistry Department. Her research focuses on developing functional materials based on collagen and collagen mimetic peptides and method development for drug delivery and wound healing.



For more info, contact: Andrea Merg, amerg@ucmerced.edu