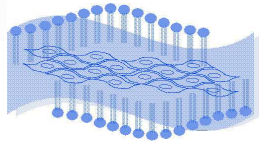




**Center for Biologically Inspired Materials and
Material Systems (CBIMMS)**



**Center for Biomolecular and Tissue
Engineering (CBTE)**

SEMINAR

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Departments of Chemical Engineering and Materials
University of California Santa Barbara

“Creating Functional Peptide Architectures at Interfaces”

Short peptide sequences, derived from whole proteins, can be useful synthetic agents for conferring a specific biological function to a material surface. Their ability to do this depends on delivering them to the surface in a biologically recognizable form, that is in a spatial configuration that is not too different from that adopted by the peptide in the whole protein. Most functional proteins have secondary and tertiary levels of structure that are essential to their activities; peptides have simpler but no less important structures. In our work, we have focussed on peptides derived from extracellular matrix proteins. We have found that attaching synthetic lipid tails to peptides fragments gives them two very useful properties for surface modification. The hydrophobic tails give rise to a self-assembly capacity enabling these molecules to organize into membrane, monolayer and bilayer structures. Less expected is that this level of self-assembly induces a second level in the peptide headgroup. Peptides from alpha-helical and triple-helical regions of protein are induced by the lipid tails to form protein-like secondary structures and therefore to have more effective biological activity.

Thursday, Feb 24 – 203 Teer Building – 3:05–5:00 PM