

## **Protein Analogous Micelles**

Matthew Tirrell

*Departments of Chemical Engineering and Materials  
Materials Research Laboratory  
Institute for Collaborative Biotechnologies  
California NanoSystems Institute  
University of California, Santa Barbara  
Santa Barbara, CA 93106-5130  
Tel:(805) 893-3141, Fax:(805) 893-8124  
E-mail: Tirrell@engineering.ucsb.edu*

Peptides are functional modules of protein macromolecules that can be displayed apart from the whole protein to create biofunctional surfaces and interfaces, or can be re-assembled in new ways to create synthetic mimics of protein structures. Each of these routes are being employed to gain new insight into protein folding and to develop new, functional, biomolecular materials. Examples of work from our laboratory in this area using peptide-lipid conjugate molecules (peptide amphiphiles) will be discussed relating to DNA-binding peptide assemblies, cancer and cardiovascular therapeutics, synthetic vaccines and matrices for regenerative medicine.