

Chemistry-Biology Interface

is an opportunity to



meet colleagues from various departments
with similar scientific interests



harness the synthetic,
mechanistic and
analytical powers of
chemistry to tackle
cutting-edge
problems in biology

earn your own funding
from the NIH



participate
in the CBI
community



CBI Faculty

- Surita R. Bhatia, Chemical Engineering
Structure and elasticity of biocompatible gels; cell and drug discovery
- James Chambers, Chemistry
Study native proteins using covalent tagging, observation and perturbation
- Peter Chien, Biochemistry & Molecular Biology
Regulated protein degradation in bacteria
- Neil S. Forbes, Chemical Engineering
Modeling tumor heterogeneity and metabolism; targeted therapies
- Scott C. Garman, Biochemistry & Molecular Biology
Structural biology of glycoproteins in human diseases
- Lila M. Gierasch, Biochemistry & Molecular Biology/Chemistry
Biophysical approaches to protein folding and localization
- Jeanne Hardy, Chemistry
Design of allosteric switches in apoptotic proteins; X-ray crystallography
- Daniel N. Hebert, Biochemistry & Molecular Biology
Protein folding and maturation in the cell
- Alejandro Heuck, Biochemistry & Molecular Biology
Transmembrane pore-forming proteins, fluorescence spectroscopy
- Matt Holden, Chemistry
Model cell membrane transport and networks
- D. Joseph Jerry, Veterinary & Animal Sciences
Regulation of p53 function
- Igor A. Kaltashov, Chemistry
Biopolymer structure and function by mass spectrometry
- Michael J. Knapp, Chemistry
Enzymology of metallo-oxygenases; bioinorganic chemistry
- Michael J. Maroney, Chemistry
Nickel metallobiochemistry; X-ray spectroscopy
- Craig T. Martin, Chemistry
Protein-nucleic acid interactions; RNA polymerase enzymology
- Murugappan Muthukumar, Polymer Science & Engineering
Assembly and dynamics of macromolecular complexes
- Susan C. Roberts, Chemical Engineering
Cellular engineering; plant secondary metabolism; cell encapsulation
- Vincent M. Rotello, Chemistry
Biomedical applications of nanoparticles and polymers
- Maria M. Santore, Polymer Science & Engineering
Proteins and membranes in biomaterials; biomimetics; bioadhesion
- Nathan Schnarr, Chemistry
Engineering biosynthetic assemblies of metabolites, bio-organic chemistry
- Danny Schnell, Biochemistry & Molecular Biology
Protein targeting and organelle biogenesis
- Lianhong Sun, Chemical Engineering
Protein engineering, synthetic biology and metabolic engineering
- Gregory N. Tew, Polymer Science & Engineering
Bio-inspired macromolecules and materials
- S. Thayumanavan (Thai), Chemistry
Biomimetic macromolecules
- Karsten W. Theis, Biochemistry & Molecular Biology
Molecular machines that repair DNA; X-ray crystallography
- Lynmarie K. Thompson, Chemistry
Membrane receptors and transporters; solid-state NMR
- Richard W. Vachet, Chemistry
Biological mass spectrometry; metal ions in biological systems
- Robert M. Weis, Chemistry
Transmembrane signaling; membrane structure
- Robert A. Zimmermann, Biochemistry & Molecular Biology
Ribosome structure and function; protein-RNA interaction



Chemistry-Biology Interface Program

University of Massachusetts Amherst

The CBI Program

CBI is a training program at the University of Massachusetts which is funded by the National Institutes of Health (NIH) and aimed at bridging the gap between traditionally chemical and biological disciplines. It includes research groups from the following graduate programs:

- Chemistry
www.chem.umass.edu
- Chemical Engineering
www.ecs.umass.edu/che
- Molecular & Cellular Biology
www.bio.umass.edu/mcb
- Polymer Science & Engineering
www.pse.umass.edu



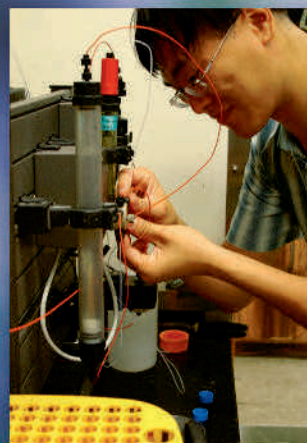
The Benefits of CBI

CBI participants are eligible for traineeships funded by the NIH. Selected students earn a two-year traineeship, including stipend, travel and book money.

The CBI Students

CBI students study multi-disciplinary problems and benefit from training in both biology and chemistry. Areas of interest of CBI students and faculty include:

- Artificial Enzymes
- Chemical Biology
- Drug Development & Delivery
- Metabolic Engineering
- Membrane Proteins & Biophysics
- Structural Biology
- Signal Transduction
- Metalloproteins/Metalloenzymes
- Protein Folding
- Protein/Nucleic Acid Machines
- Biomimetic Materials
- Protein Design
- Molecular Recognition



The CBI Requirements

Chalk Talk

Once per month students and faculty gather over a pizza lunch to hear presentations from one or two research labs.



Course Work

Students complete the requirements of their home department as well as take a few interdisciplinary courses. Among these are a drug design course in which representatives from pharmaceutical companies provide weekly lectures, a student seminar, and a scientific ethics course.

For more information

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www.umass.edu/cbi