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](http://www.chem.umass.edu)
- Chemical Engineering  
  [www.che.umass.edu](http://www.che.umass.edu)
- Molecular & Cellular Biology  
  [www.bio.umass.edu](http://www.bio.umass.edu/mcb)
- Polymer Science & Engineering  
  [www.pse.umass.edu](http://www.pse.umass.edu)

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 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 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 inter-disciplinary courses. Among these are a drug design course in which representatives from area pharmaceutical companies provide weekly lectures, and a scientific ethics course.

For more information

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[www.umass.edu/cbi](http://www.umass.edu/cbi)
Chemistry-Biology Interface is an opportunity to meet colleagues from various departments with similar scientific interests and harness the synthetic, mechanistic and analytical powers of chemistry to tackle cutting-edge problems in biology.

CBI Faculty

Min Chen, Chemistry
Engineering protein pores for biosensing

Peter Chien, Biochemistry & Molecular Biology
Regulated protein degradation in bacteria

Michelle Farkas, Chemistry
Methods for the Study of Cancer Progression and Metastasis

Scott C. Garman, Biochemistry & Molecular Biology
Structural biology of glycoproteins in human diseases

Lila M. Giersch, 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
Structure of transmembrane complexes using fluorescence approaches

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-oxidases; bioorganic chemistry

Michael J. Maroney, Chemistry
Nickel metallo-chemistry; 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

Sarah Perry, Chemical Engineering
Molecular engineering, self-assembly, and microrheological technologies to generate biologically relevant microenvironments for the study and application of biomacromolecules

Shelly Peyton, Chemical Engineering
Engineered microenvironment control of cell motility

Vincent M. Rotello, Chemistry
Biomedical applications of nanoparticles and polymers

Maria M. Santore, Polymer Science & Engineering
Proteins and membranes in biomaterials; biomimetics; bioadhesion

Jessica Schifman, Chemical Engineering
Biopolymer nanostructures and hydrogels

Meg Stratton, Biochemistry & Molecular Biology
Understanding the molecular components of long term memory formation

Sloan Siegrist, Microbiology
Engineering the cell surfaces of bacterial pathogens

Gregory N. Tew, Polymer Science & Engineering
Bio-inspired macromolecules and materials

S. Thayumanavan, Chemistry
Biomimetic macromolecules

Lynnmarie K. Thompson, Chemistry
Membrane receptors and transporters; solid-state NMR

Richard W. Vachet, Chemistry
Biological mass spectrometry; metal ions in biological systems

Elizabeth Vietling, Biochemistry & Molecular Biology
Plant molecular chaperones, stress responses, and nitric oxide metabolism

University of Massachusetts Amherst