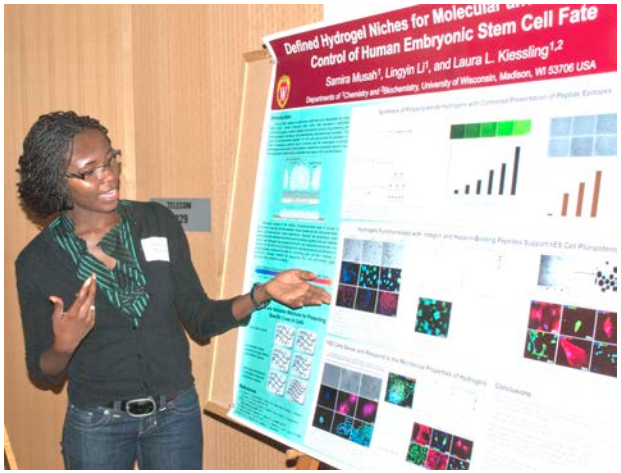
Chemistry Biology Interface

CBI Training Program

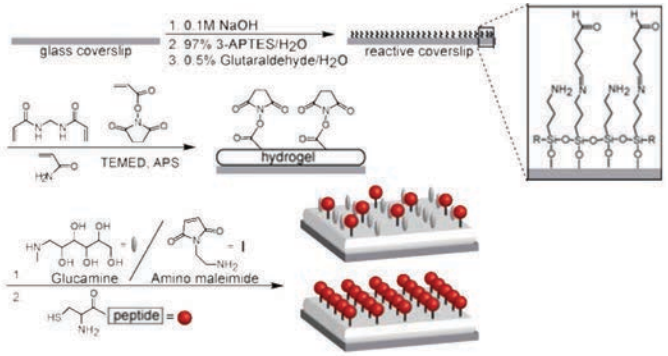
The Chemistry-Biology Interface (CBI) Training Program at the University of Wisconsin-Madison was initiated to provide outstanding graduate students with an opportunity to broaden and deepen their knowledge of interdisciplinary research at the frontiers of this interface and become future leaders in this area.



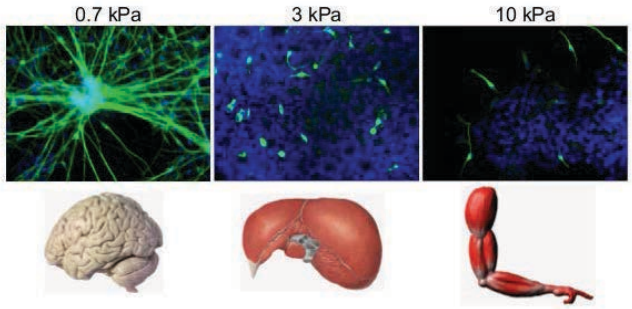
The CBI program at UW--Madison is supported by the National Institutes of Health and currently draws from the expertise of over 50 faculty members across scientific programs: Biomedical Engineering, Chemical & Biological Engineering, Chemistry, Integrated Program in Biochemistry, Microbiology Doctoral Training Program, and Pharmaceutical Sciences.

Interdisciplinary Training

The objectives of CBI training are twofold. Improve the ability of researchers to work, understand, and communicate about their research across disciplinary lines and facilitate the education of scientists who can identify emerging research areas and devise innovative solutions to problems by combining traditional approaches.



Production of polyacrylamide hydrogels with controlled presentation of peptides. Hydrogels were appended into functionalized glass coverslips. Functionalization of these materials was conducted to introduce a nonbinding group (glucamine) and peptide sequences of interest.



Substratum elasticity instructs human embryonic stem cell differentiation into neurons: By using synthetic hydrogels that mimic elasticity of different tissues (brain, liver, and muscle), we (Kiessling Group, project led by Samira Musah) demonstrate that human embryonic stem cell differentiation can be restricted to neurons when a matrix with elasticity close to brain tissues is employed.

Images Provided by Samira Musah

Training Program Components

The program provides stipends for up to two years, tuition expenses, and travel funds to attend conferences. Students are usually appointed during their second year of graduate studies.

Thesis Research: While CBI Trainee thesis research does not necessarily focus on the chemistry-biology research, trainees must have an interest.

Chemical Biology Course: Open to all interested graduate students, this course serves as an introduction to concepts and approaches at the chemistry-biology interface.

Chemical Biology Seminar Course: This interactive graduate course focuses on recent developments at the chemistry-biology interface. Participants discuss recent publications in chemical biology.

CBI Colloquium: CBI Trainees present and discuss their research in a monthly colloquium.

CBI Internships: CBI Trainees participate in a 10-12 week research opportunity in industry or at a national laboratory.

Commitment

The University of Wisconsin has a long-standing commitment to the education of all citizens, especially to those individuals who, by virtue of ethnic or racial background, have been underrepresented in the academic community and professions. Within this context, the CBI program is committed to the recruitment and retention of underrepresented minority students.

To learn more about the CBI Training Program, please visit the website.
www.biochem.wisc.edu/cbit

Faculty Trainers

Laura Kiessling (Program Director) Chemistry, Biochemistry
Helen Blackwell (Deputy Director) Chemistry
Nicholas Abbott Chemical & Biological Engineering
Aseem Ansari Biochemistry
Dave Beebe Biomedical Engineering, Mechanical Engineering
Thomas Brunold Chemistry
Tim Bugni Pharmaceutical Sciences
Steve Burke Chemistry
Judith Burstyn Chemistry, Pharmacology
Sam Butcher Biochemistry
Weibo Cai Radiology & Medical Physics
Silvia Cavagnero Chemistry
Josh Coon Biomolecular Chemistry, Chemistry
Michael Cox Biochemistry
Qiang Cui Chemistry
Cameron Currie Bacteriology
John Denu Biomolecular Chemistry
Ying Ge Cell & Regenerative Biology
Sam Gellman Chemistry
Randall Goldsmith Chemistry
Bob Hamers Chemistry
Mike Hoffmann Oncology & Medical Genetics
Aaron Hoskins Biochemistry
Jiaoyang Jiang Pharmaceutical Sciences
Song Jin Chemistry
Jim Keck Biomolecular Chemistry
Patricia Kiley Biomolecular Chemistry
Jason Kwan Pharmaceutical Sciences
Lingjun Li Pharmacology
Dave Lynn Chemical & Biological Engineering, Chemistry
John Markley Biochemistry
Sandro Mecozzi Pharmaceutical Sciences, Chemistry
Regina Murphy Chemical Engineering
William Murphy Biomedical Engineering
Michael Murrell Biomedical Engineering
Dave Pagliarini Biochemistry
Sean Palecek Chemical & Biological Engineering, Biomedical Engineering
Brian Pfleger Chemical & Biological Engineering
Ron Raines Biochemistry, Chemistry
Edward Ruby Medical Microbiology & Immunology
Jennifer Schomaker Chemistry
Alessandro Senes Biochemistry
Eric Shusta Chemical & Biological Engineering, Biomedical Engineering
Lloyd Smith Chemistry
Shannon Stahl Chemistry
Eric Strieter Chemistry
Weiping Tang Pharmaceutical Sciences, Chemistry
Michael Thomas Bacteriology
Randal Tibbetts Human Oncology
Doug Weibel Biochemistry, Biomedical Engineering, Chemistry
Tehshik Yoon Chemistry

CBI taught me how to think as a scientist, address problems from both biological and chemical perspectives and communicate to a diverse audience.

-Samira Musah
UW Chemistry PhD, 2012
Dean's Postdoctoral Fellow
Harvard University

The CBI Training Program has continued to reap benefits for me as I am building my career because of the basic knowledge it provided that has helped me to foster communication with other scientists and colleagues on campus. In addition, the networking connections I have made outside of my school are invaluable.

-Laura Wysocki
UW Chemistry PhD, 2008
Assistant Professor of Chemistry
Wabash College

The CBI program really exposed me to the infinite possibilities of research that existed outside my primary field and offered insight into a number of techniques/analyses/tangents I likely wouldn't have found on my own.

-Ethan Lippman
UW Chemical Engineering PhD, 2011
Postdoctoral Fellow
University of Wisconsin

My internship impacted my career choices and provided an opportunity for in depth study on a topic other than my thesis research. I was also exposed to the marketing and business decisions that are made in biotech and pharmaceutical research, which has broad implications regarding the study of diseases that occur around the world.

-Kelly Gorres
UW Biochemistry PhD, 2009
Postdoctoral Fellow
Yale University

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