

Lance C. Bridges, Ph.D.

Curriculum Vitae

The University of Central Arkansas
Department of Chemistry
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EDUCATION

Bachelor of Science, Biochemistry, John Brown University, Siloam Springs, AR, May 2000.

Doctor of Philosophy, Biochemistry, University of Oklahoma Health Sciences Center, Department of Biochemistry and Molecular Biology, Oklahoma City, OK, December 2003.

Mentor: Dr. Ron D. Bowditch

Thesis: Leukocyte Integrin Recognition of ADAM Family Members: Delineation of Molecular Interactions of Homologous Mammalian Disintegrins.

POSITIONS

Assistant Professor, Department of Chemistry, University of Central Arkansas, 2006-present
NIH Post-Doctoral Fellow, Department of Cell and Developmental Biology, University of Virginia Health System, *mentor:* Dr. Judith M. White, 2004-2006

Graduate Research Assistant, Department of Biochemistry and Molecular Biology, The University of Oklahoma Health Sciences Center, 2000-2003

Undergraduate Summer Research Assistant, Department of Biochemistry and Molecular Biology, The University of Oklahoma Health Sciences Center, 1998-1999

FACULTY RESEARCH GRANTS AND AWARDS

Extramural:

Research Corporation, Cottrell College Science Award ID: 7680 (Co-PI with Dr. Melissa Kelley), "Effect of Retinoids on Lymphocyte Metalloprotease Mediated Shedding" 2008-2010

Arkansas IDeA Networks of Biomedical Excellence (INBRE), summer outreach: P20 RR16460, *mentor:* Dr. Jerry Ware, "A Novel Regulatory Mechanism of a Human Lymphocyte Metalloprotease" 2008

Arkansas IDeA Networks of Biomedical Excellence (INBRE), equipment grant, (Co-PI with Drs. Melissa Kelley, J.D. Swanson, Kari Naylor, and Brent Hill), "Expansion of Commonly Used Incubation and Freezer Equipment in the College of Natural Sciences and Mathematics at the University of Central Arkansas" 2008

Arkansas IDeA Networks of Biomedical Excellence (INBRE), summer outreach: P20 RR16460, *mentor:* Dr. Jerry Ware, "A Novel Regulatory Mechanism of a Human Lymphocyte Metalloprotease" 2007

POST-DOCTORAL FELLOWSHIPS

Individual NIH Kirschstein – National Research Service Award, 1F32GM073354-01,
“ADAM Proteolytic and Adhesive Activity in Cell Migration”, 2005-2006

Institutional NIH NRSA, National Cancer Institute, 5T32CA09109-28, Cancer Center
Training Fellowship, University of Virginia, 2004-2005

GRADUATE RESEARCH AWARDS

- ◆ University of Oklahoma Health Sciences Center, Outstanding Graduate, 2003
- ◆ American Society for Cell Biology, Student Travel Award, 2003
- ◆ Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, Fred and Marie Gray Research Achievement Award, 2003
- ◆ College of Medicine Graduate Student Association (COMGSA), University of Oklahoma Health Sciences Center, Travel Award, 2003
- ◆ American Society of Hematology, Student Travel Award, 2001
- ◆ Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, Student Travel Award, 2001
- ◆ University of Oklahoma Health Sciences Center, Graduate Program in Biomedical Sciences (GPiBS), Provost’s Fellowship, 2000

TEACHING EXPERIENCE

University of Central Arkansas

COURSES:

Biochemistry Lab (CHEM4121), 2007-present, 4 lab hrs/week. An upper division lab course that introduces biology/chemistry majors to seminal biochemistry techniques including but not limited to: agarose gel electrophoresis, restriction mapping, ELISA, SDS-PAGE analysis, and Western Blotting. Emphasis is placed on hands-on experience, keeping an accurate, up-to-date notebook, and fostering independent thinking and technical trouble-shooting skills.

Physiological Chemistry II (CHEM2450), 2006-present, 3 lecture hrs/week with 2 lab hrs/week. This course is aimed to provide pre-nursing, dietetics, and occupational therapy majors with a topical overview of organic and biological chemistry. Course material is geared toward students with an innate interest in the health care professions and therefore strongly emphasizes the role and impact of chemical processes in a biological context (e.g. metabolic disorders). The objective of this course is to provide students with a working knowledge of chemistry by enabling them to understand how organic and biochemistry applies directly to health science fields in a useful and practical manner.

Principles of Biochemistry (CHEM3300), 2006-2007, 3 lecture hrs/week. An introductory biochemistry course which focuses on the identity, structure, and function of biological macromolecules. A main goal is for students to employ their acquired biochemical knowledge in a logical manner for understanding disease diagnosis and treatment/intervention rationale. Primary literature is used to augment concepts from texts and acquaint students with how science is accurately communicated.

Metabolic Biochemistry (CHEM3350), substitute lecturer for a colleague on maternity leave, 5 weeks in 2006, 3 lecture hrs/week. The course material is intended for advanced dietetics majors. The course focuses on how biological macromolecules impact metabolism within humans. Effort is taken to relate basic information from lectures to known human diseases and disorders.

UCA UNDERGRADUATE RESEARCH MENTORING:

Since arriving at UCA in August of 2006, I have mentored six students within the lab. Below is a brief summary of highlights of each of these.

Joshuah Lingo, Fall 2006 to current: efforts have merited co-authorship on a *Biochemistry* paper
oral presentations: Fall 2007 UCA College of Natural Sciences and Mathematics (CNSM) chalk talk seminar series and the 2008 Southwest Regional Meeting (SWRM) of the American Chemical Society in Little Rock, AR
poster presentations: 2008 UCA CNSM Research Symposium, and the 2008 National Meeting of the American Chemical Society in New Orleans, LA

Adam Morrow, Spring 2007 through Spring 2008: graduated May 2008, currently attending graduate school at the University of South Alabama Medical School in the Interdisciplinary Graduate Program in the Basic Medical Sciences
oral presentations: Fall 2007 UCA College of Natural Sciences and Mathematics (CNSM) chalk talk seminar series

Rebecca Morrow, Fall 2007 through Spring 2008, graduated May 2008: currently attending graduate school at the University of South Alabama Medical School in the Interdisciplinary Graduate Program in the Basic Medical Sciences
oral presentations: Spring 2008 UCA College of Natural Sciences and Mathematics (CNSM) chalk talk seminar series

Maggie Block, Summer 2008 to current:
poster presentations: 2008 Southwest Regional Meeting (SWRM) of the American Chemical Society in Little Rock, AR

Kate Merrell, joined Fall 2008

Katie Hoppert, joined Fall 2008

UCA OTHER:

Thesis Advisory Committee for Mr. Willis Johnson, Masters in Biology, 2007-present

University of Virginia

Laboratory supervisor and mentor for:

Ms. Phoebe Williams, laboratory technician I, 2005-2006

Ms. Shannon O'Neill, University of Virginia graduate student, 2005-2006 (completed M.S. in 2006)

Piedmont Virginia Community College

Biotechniques (BIO 170), course coordinator 2004, 2 lecture hrs/week. This basic introductory course exposes individuals considering a science-based career to a real lab environment by providing hands-on experience with various lab techniques.

John Brown University

Student Instructor (SI), General Chemistry I and II class tutor, 1998-2000. The SI's purpose is to supplement and augment concepts presented to students in class. SI sessions were held apart from normal lecture hours and were open to anyone currently enrolled in general chemistry.

SERVICE

Ad-hoc peer reviewer for: *Journal of Cell Science*, *FEBS Letters*, *BBA- Molecular Cell Research*

UCA, Department of Chemistry, curriculum committee, *purpose*: develop and implement an American Chemical Society (ACS) certified Biochemistry degree track, 2007

UCA, Department of Chemistry, curriculum committee, *purpose*: establish program requirements and candidate selection criteria, Masters of Science in Education with chemistry emphasis, 2008

UCA, Department of Chemistry, Chemistry faculty search committee, *purpose*: advertise and successfully recruit an assistant professor to fill a vacancy in the Department of Chemistry, 2008- until position filled

UCA, Department of Chemistry, departmental seminar series committee, *purpose*: establish a permanently scheduled departmental seminar series for the express benefit of students, 2008

Category Judge, Arkansas Science Talent Search, 2007

Category Judge, Arkansas Junior Academy of Sciences, 2007 and 2008

Category Judge, Arkansas State Science Fair, 2008

PUBLICATIONS

1. Charles M. Roberts, Patricia H. Tani, **Lance C. Bridges**, Zoltan Laszik, and Ron D. Bowditch. (1999) MDC-L, a Novel Metalloprotease Disintegrin Cysteine-Rich Protein Family Member Expressed by Human Lymphocytes. *J. Biol. Chem.* 274:29251-29259
2. **Lance C. Bridges**, Patricia H. Tani, Krista R. Hanson, Charles M. Roberts, Matthew B. Judkins, and Ron D. Bowditch. (2002). The Lymphocyte Metalloprotease MDC-L (ADAM28) is a Ligand for the Integrin $\alpha 4\beta 1$. *J. Biol. Chem.* 277:3784-3792
3. **Lance C. Bridges**, Krista R. Hanson, Patricia H. Tani, Timothy Mather, and Ron D. Bowditch. (2003) Integrin $\alpha 4\beta 1$ Dependent Adhesion to ADAM28 (MDC-L) Requires an Extended Surface of the Disintegrin Domain. *Biochemistry* 42:3734-3741
4. **Lance C. Bridges**, Dean Sheppard, and Ron D. Bowditch. (2005) ADAM Disintegrin-like Domain Recognition by the Lymphocyte Integrins $\alpha 4\beta 1$ and $\alpha 4\beta 7$. *Biochem. J.* 387(1):101-108
5. **Lance C. Bridges** and Ron D. Bowditch. (2005) ADAM-Integrin Interactions; Potential Integrin Regulated Ectodomain Shedding Activity. *Curr. Pharm. Design* 11(7):837-847
6. Judith M. White, **Lance C. Bridges**, Douglas W. DeSimone, Monika Tomczuk, Tyra G. Wolfsberg. (2005) Introduction to the ADAM family. *Proteases in Biology and Diseases*, N.M. Hooper and U. Lendeckel, Editors. Springer. vol 4: pgs 1-28
7. Jing Huang, **Lance C. Bridges**, and Judith M. White. (2005) Selective Modulation of Integrin Mediated Cell Migration by Distinct ADAM Family Members. *Molec. Biol. Cell* 16(10):4982-4991
8. **Lance C. Bridges**, Joshua D. Lingo, Rachel A. Grandon, and Melissa D. Kelley. (2008) All-*trans*-Retinoic Acid Induces Integrin-independent B-cell Adhesion to ADAM Disintegrin Domains. *Biochemistry* 47(15):4544-4551
9. Shuo Wei, **Lance C. Bridges**, Phoebe Williams, Charles A. Whittaker, Anoop Shah, Shannon O'Neill, Judith M. White, and Douglas W. DeSimone. ADAMs 13 and 19 are Required for *Xenopus* Head Development by Regulating Class B Ephrin and Wnt Signaling. *Nat. Cell Bio.*, in revision

REFERENCES

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