

Ronald F. Peck

Lawrence University
Department of Biology
Appleton, WI 54911

Education

- Ph.D.** University of Wisconsin (Madison, WI)
Department of Biomolecular Chemistry, December 2001
- B.S.** Linfield College (McMinnville, OR)
Biology, June 1997, *cum laude*

Teaching Experience

- Fall 2006- present Assistant Professor
Department of Biology, Lawrence University
Courses in biology from the introductory to advanced levels; Freshman Studies
- Spring 2005- Teaching as Research Internship
Summer 2006 Biology Core Curriculum, University of Wisconsin-Madison
Course Director: Dr. Michelle Harris, Ph.D.
Cellular Biology Laboratory
- Summer 2004 Teaching Assistant
Biology of Parasitism Course, Marine Biological Laboratory
Course Director: Dr. James D. Bangs, Ph.D.
Protein Trafficking in African Trypanosomes
- Fall 2000 Teaching Assistant
Department of Biomolecular Chemistry, University of Wisconsin-Madison
Course Chair: Dr. James E. Dahlberg, Ph.D.
Biomolecular Chemistry 314 – Introduction to Human Biochemistry
- Fall 1996 Teaching Assistant
Department of Biology, Linfield College
Course Chair: Dr. Michael F. Roberts, Ph.D.
Biology 111 – Principles of Biology

Research Experience

- 2006-present Lawrence University
Department of Biology
Membrane protein complex assembly using halophilic Archaea as model systems
- 2001-2006 University of Wisconsin-Madison (Post-doctoral research)
Department of Medical Microbiology and Immunology
Research Advisor: Dr. James D. Bangs, Ph.D.
Analysis of protein function in the secretory system of the African Trypanosome
- 1997-2001 University of Wisconsin-Madison (Graduate research)
Department of Biomolecular Chemistry
Research Advisor: Dr. Mark P. Krebs, Ph.D.
Biogenesis of the retinal cofactor of bacteriorhodopsin in *Halobacterium salinarum*
- 1996-1997 Linfield College (Undergraduate research)
Department of Biology
Research Advisor: Dr. Michael F. Roberts, Ph.D.
Ligand binding and activation of the bovine β -adrenoceptor

Publications

Dummer, A.M.*, Bonsall, J.C.*, Cihla, J.B.* Lawry, S.M.*, Johnson, G.C.*, & **Peck, R.F.**,
Bacterioopsin-mediated regulation of bacterioruberin biosynthesis in *Halobacterium salinarum*,
Journal of Bacteriology, *in press*

*Lawrence undergraduates

Harris, M.A., **Peck, R.F.**, Colton, S., Morris, J., Chaibub Neto, E., & Kallio, J. A Combination of Hand-held Models and Computer Imaging Programs Helps Students Answer Oral Questions about Molecular Structure and Function: A Controlled Investigation of Student Learning, *CBE Life Sciences Education* 8: 29-43 (2009).

Peck, R.F., Shiflett, A.M., Schwartz, K.J., McCann, A., Hajduk, S.L. & Bangs, J.D. The LAMP-Like Protein p67 Plays an Essential Role in the Lysosome of African Trypanosomes. *Molecular Microbiology* 68: 933-946 (2008).

Schwartz, K.J., **Peck, R.F.**, Tazeh, N.N. & Bangs, J.D. GPI Valence and the Fate of Secretory Membrane Proteins in African Trypanosomes. *Journal of Cell Science* 118: 5499-5511 (2005).

Woodson, J.D., **Peck, R.F.**, Krebs, M.P. & Escalante-Semerena, J.C. The *cobY* gene of the archaeon *Halobacterium* sp. strain NRC-1 is required for *de novo* cobamide synthesis. *Journal of Bacteriology* 185: 311-316 (2003).

Peck, R.F., Johnson, E.A. & Krebs, M.P. Identification of a lycopene β -cyclase required for bacteriorhodopsin biogenesis in the archaeon *Halobacterium salinarum*. *Journal of Bacteriology* 184: 2889-2897 (2002).

Peck, R.F., Echavarri-Erasun, C., Johnson, E.A., Ng, W.V., Kennedy, S.P., Hood, L., DasSarma, S. & Krebs, M.P. *brp* and *blh* are required for synthesis of the retinal cofactor of bacteriorhodopsin in *Halobacterium salinarum*. *Journal of Biological Chemistry*. 276: 5739-5744 (2001).

Ng, W.V., Kennedy, S.P., . . . , **Peck, R.F.**, . . . , Hood, L., & DasSarma, S. Genome sequence of *Halobacterium* Species NRC-1. *Proceeding of the National Academy of Sciences of the USA* 97: 11677-12388 (2000).

Peck, R.F., DasSarma, S. & Krebs, M.P. Homologous gene knockout in the archaeon *Halobacterium salinarum* with *ura3* as a counterselectable marker *Molecular Microbiology* 35: 667-676 (2000).

Research Grants

- 2011-2014 National Institutes of Health Academic Research Enhancement Award
“Investigating Regulation of Integral Membrane Cofactor Biosynthesis using *Halobacterium salinarum* Bacteriorhodopsin as a Model System”
Principal Investigator – \$289,000
- 2009 National Science Foundation Major Research Instrumentation grant
“Acquisition of a 400 MHz NMR Spectrometer to Support Undergraduate Research and Research Training at Lawrence University and the Fox Valley Region of Wisconsin”
Co-Principal Investigator - \$436,000
- 2009-2010 Lawrence University Faculty Development Grant
Grant obtained to support participation in Teagle Foundation-funded study, “Researching Assessment Methods in Tutorial Education” \$4400
- 2008 Lawrence University Curricular Development Grant
Grant obtained to attend the American Society for Microbiology/BioQuest Bioinformatics Institute, \$1400
- 2007 Lawrence University Scholarly Distinctiveness Grant
“Construction of an instrument to study how variability in light illumination affects biological processes”, \$900
- 2007 – 2009 Merck Foundation/American Association for the Advancement of Science Undergraduate Science Research Program: “Promoting interdisciplinary research at Lawrence University”
Three year joint grant for Biology and Chemistry Departments
Co-Principal Investigator - \$60,000

Presentations

As a Lawrence faculty member

Presentation to the Lawrence University Board of Trustees, May, 2011

“What can a colorful, salt-loving microbe teach us about human disease?”

Lawrence University Recent Advances in Biology Lecture Series, February, 2011

"Life at the Extreme: How the Salt-Loving Microbe *Halobacterium salinarum* Responds to its Environment"

Lunch at Lawrence, May, 2010

“What can *E. coli* tell us about E.T.?”

Gordon Research Conference on Archaea: Ecology, Metabolism & Molecular Biology, July, 2009, Waterville, NH (Poster, with 3 undergraduate co-authors)

“Regulation of Retinal Biosynthesis by Bacterioopsin in *Halobacterium salinarum*”

Researching Assessment Methods in Tutorial Education Conference, August, 2009, Appleton, WI

“Shared Assessment Module I in the Genomics Tutorial”

American Society for Microbiology General Meeting, May, 2009, Philadelphia, PA (Poster, with 3 undergraduate co-authors)

“Regulation of Retinal Biosynthesis by Bacterioopsin in *Halobacterium salinarum*”

Biology Seminar, March, 2008, Beloit College, Beloit, WI

“Life at the Extreme: How the Salt-Loving Microbe *Halobacterium salinarum* Responds to its Environment”

Midstates Science & Mathematics Consortium Undergraduate Research Symposium, November, 2007, St. Louis, MO

Panel discussion with P. Lostroh, Colorado College & P. Overvoorde, Macalester College “Careers at Liberal Arts Colleges”

Lawrence University Biology Club, November, 2006

“A Career as an Academic Scientist”

Teaching Adventures and Outcomes Brownbag, November, 2006, UW-Madison, Madison, WI

“Does a combination of technological and tactile tools help laboratory students learn molecular structure and function?”

Lawrence University Recent Advances in Biology Lecture Series, October, 2006

“How the Salt-Loving Microbe *Halobacterium salinarum* Responds to its Environment”

Prior to Lawrence

UW Microbial Pathogenesis & Host Responses Group, April, 2005, UW-Madison, Madison, WI

“Stage-specific requirement for the lysosomal membrane glycoprotein, p67, in *Trypanosoma brucei*”

Kinetoplastid Molecular Cell Biology Meeting, April, 2005, Woods Hole, MA (Poster)
“Stage-specific requirement for the lysosomal membrane glycoprotein, p67, in *Trypanosoma brucei*”

Madison Area Technical College, Biotechnology Laboratory Technician Program Molecular Biology II Class, March, 2005, Madison, WI
“Approaches to determining gene function in the parasite *Trypanosoma brucei*”

Madison Area Technical College, Biotechnology Laboratory Technician Program Career Seminar, March, 2005, Madison, WI
“A Career in Academic Science?”

Chicago Area Modular Parasitology Meeting, May, 2004, Chicago, IL (Poster)
“Stage-Specific Requirement for a Lysosomal Membrane Protein in *Trypanosoma brucei*”

UW Medical School Department of Biomolecular Chemistry Seminar Series, June, 2001
“Biogenesis of the Retinal Cofactor of an Archaeal Rhodopsin”

UW Medical School Department of Biomolecular Chemistry Seminar Series, October, 2000
“Dynamic Protein Localization in Bacterial Cell Division”

International Symposium on Nucleic Acids and Signal Transduction, July, 2000, Waltham, MA (Poster)
“*brp* Genes are Required for Synthesis of the Retinal Cofactor of Bacteriorhodopsin in *Halobacterium salinarum*”

Gordon Research Conference: Bacterial Cell Surfaces, June, 2000, New London, NH (Poster)
“*brp* Genes are Required for Synthesis of the Retinal Cofactor of Bacteriorhodopsin in *Halobacterium salinarum*”

Howard Hughes Medical Institute International Symposium: New Approaches to Membrane Protein Structure and Function, August, 1998, Madison, WI (Poster)
“Decreased Accumulation of Bacteriorhodopsin Mutants in *Halobacterium salinarum*”

Workshops Attended

Assessment Institute, Indianapolis, IN, October, 2010
Attended 3-day workshop to gain information and practical ideas to assist Lawrence in developing a program for assessment of student learning

Researching Assessment Methods in Tutorial Education, Appleton, WI, October, 2008
Worked as a part of a group of 8 professors from Lawrence and three similar colleges to develop an assessment rubric for classes taught in the style of an Oxford tutorial

American Society for Microbiology/BioQUEST Evolutionary Bioinformatics Institute, Washington, D.C., March, 2008

Selected as one of twenty-four faculty members nationwide to learn and discuss teaching the field of bioinformatics to undergraduate students

Midstates Consortium New Faculty Workshop, Björklunden, WI July, 2007

Attended with other newer faculty members to discuss charting a scholarly career

Interdisciplinary Science Education: Institutional Examples, Lessons Learned and Challenges, , Northfield, MN, March, 2007

Attended workshop to discuss challenges and successes in providing interdisciplinary science education to undergraduate students

Student Presentations

Amare, M.* “The importance of faculty-student collaboration at Lawrence” This is Lawrence (donor development program), May, 2011

Amare, M.* “Design of a High School Lab: Discovery of Antibiotic Substances” (Poster) Lawrence University Biofest, May, 2011

Zhao, Y.* & Peck, R.F. “Bacterioopsin’s regulation of bacterioruberin synthesis in *Halobacterium salinarum*” (Poster) Midstates Consortium for Math & Science 2010 Undergraduate Research Symposia in the Biological Sciences and Psychology, November, 2010

Dummer, A.M.* & Peck, R.F. “Bacterioruberin Biosynthesis in *Halobacterium salinarum*” (Poster) Ronald E. McNair Scholars Research Symposium, November, 2009

Dummer, A.M.* & Peck, R.F. “Bacterioruberin Biosynthesis in *Halobacterium salinarum*” (Poster) Lawrence University 2009 Annual Summer Research Poster Session, October, 2009

Salt, K.A.* & Peck, R.F. “Antioxidant Protection of Prokaryotic Cells from UV Damage” (Poster) Science Hall Colloquium Poster Session, May, 2009

Vite, R.A.* & Peck, R.F. “Photolyase Genes are Constitutively Expressed in the Archaeon *Halobacterium salinarum*” (Poster) Science Hall Colloquium Poster Session, May 2009

Cihla, J.B.*, Johnson, G.C.*, & Peck, R.F. “Generation of Antibodies for the Putative Bacteriorhodopsin Complexes from *Halobacterium salinarum*” (Poster) Midstates Consortium for Math & Science 2008 Undergraduate Research Symposia in the Biological Sciences and Psychology, November, 2008

Lawry, S.M.* “Regulation of Retinal Biosynthesis in *Halobacterium Salinarum*” Midstates Consortium for Math & Science 2008 Undergraduate Research Symposia in the Biological Sciences and Psychology, November, 2008

Lawry, S.M.*, Bonsall, J.B.*, Reichel, J.M.*, & Peck, R.F. “Regulation of Retinal Biosynthesis in *Halobacterium salinarum*” (Poster) Lawrence University 2008 Annual Summer Research Poster Session, October, 2008

Cihla, J.B.* & Johnson, G.C.* “Generation of Antibodies for the Putative Bacteriorhodopsin Complexes from *Halobacterium salinarum*” Lawrence University 2008 Summer Research Symposium, August, 2008

Bonsall, J.B.* & Lawry, S.M.* “Regulation of Retinal Biosynthesis in *Halobacterium salinarum*” Lawrence University 2008 Summer Research Symposium, August, 2008

Briceno, T.* “The Effects of Differently-Sized and Shaped Gold Nanoparticles on *Escherichia coli* and *Staphylococcus aureus*” Lawrence University 2007 Summer Research Symposium, August, 2007

Miller, S.A.* “Characterization of *crtB1* and *crtB2* Genes in *Halobacterium salinarum*” Lawrence University 2007 Summer Research Symposium, August, 2007

Reichel, J.M.* “Identification of Bacterioruberin Biosynthetic Enzymes in *Halobacterium salinarum*” Lawrence University 2007 Summer Research Symposium, August, 2007

Martin, D.* & Peck, R.F. “Development of New Instrumentation for the Study of Light-Responsive Organisms” (Poster) Science Hall Colloquium Poster Session, May 2007

*student presenters

Mentored Undergraduate Research Students

At Lawrence

YongSu Lee, Summer 2011

“Characterization of potentially novel antibiotics from bacteria”

Emily Hoylman, Spring/Summer 2011

“Identification of proteins associated with bacterioopsin in *Halobacterium salinarum*”

Mary Schulz, Spring/Summer 2011

“Bacterioruberin production in *Halobacterium* and *Haloferax*”

Nicholas Waldner, Spring/Summer 2011

“Examination of *lye* gene function in *Haloferax*”

Meareg Amare, Spring/Fall 2010, Winter/Spring 2011

“Characterization of a potentially novel antibiotic of bacterial origin”

Yinong Zhao, Summer/Fall 2010, Winter 2011

“Heterologous expression of genes in halophilic Archaea”

Jacob Cihla, Spring/Summer/Fall 2008, Spring/Winter/Summer/Fall 2009, Winter/Summer 2010

“Examining the function of the *crtB1* and *crtB2* genes in *Halobacterium salinarum*”

Antoinette Dummer, Fall 2008, Winter/Spring/Summer/Fall 2009, Winter/Spring/Summer 2010

“Bacterioruberin Biosynthesis in *Halobacterium salinarum*” (Honors thesis)

Gabriela Johnson, Spring/Summer/Fall 2008, Winter/Summer 2009

“Determination of the role of the phytoene synthase enzyme in *Halobacterium salinarum*”

April Peterson, Spring 2009

“Metagenomic analysis of the microbial flora on musical instruments”

Rebekah Vite, Winter/Spring 2009

“Analysis of photolyase gene expression in *Halobacterium salinarum*”

Kelly Salt, Winter 2009

“Analysis of antioxidant protection of prokaryotic cells”

Jorge Meija, Winter 2009

“Analysis of the 2A protein in the human cytomegalovirus”

Stephanie Lawry, Summer 2008

“Determination of the bacterioruberin synthetic enzyme in *Halobacterium salinarum*”

Jessica Bonsall, Spring/Summer 2007, Winter/Summer 2008

“Determination of the function of the *lye* gene in *Halobacterium salinarum*”

Stacey-Ann Miller, Spring/Summer 2007, Fall/Winter/Spring 2008

“Determination of the function of the *crtB2* gene in *Halobacterium salinarum*”

Jenna Reichel, Spring/Summer 2007, Fall 2008

“Deletion of *ORF1681* in *Halobacterium salinarum*”

Tatiana Briceno, Summer 2007

“Examination of the antimicrobial properties of metal nanoparticles”

Daniel Martin, Winter/Spring 2007

“LED arrays in biology”

Shuan Hou, Winter 2007

“Antimicrobial properties of silver nanoparticles”

Cherisse Hall, Fall 2006/Winter/Spring 2007

“Identification of an additional phytoene synthase enzyme in *Halobacterium salinarum*”

Matthew Marin, Fall 2006/Winter/Spring 2007

“Deletion of the putative lycopene elongase enzyme in *Halobacterium salinarum*”

At UW-Madison

Renee Racette, Spring/Summer/Fall 2004

“Expression and purification of *T. brucei* trypanopain for use in antibody generation”

Joshua Ng, Summer/Fall 2002/Spring 2003

“Expression and purification of *T. brucei* BiP protein for use in antibody generation”

Tessa Bergsbaken, Fall 2000/Spring 2001

“Deletion and initial characterization of *crtBI* in *Halobacterium salinarum*”

University Service

At Lawrence

Committee on University Assessment, 2009 – present

Biochemistry Major Program Chair, 2008 – present

Lawrence University Lab Science Day speaker, 2011

Institutional Review Board, 2008 – 2010 (Chair, 2009-2010)

Tenure-track Chemistry Professor search committee member, Fall 2008

Technology Advisory Committee, 2007-2008 academic year

Chief Information Officer search committee member, 2008

Biochemistry Major steering committee, 2007-2008 academic year

Statistician for Lawrence University basketball teams (occasional), 2007-present academic years

Howard Hughes Medical Institute undergraduate research grant proposal contributor, 2007

Faculty Advisor, Confidence and Determination in Youth club, 2007-2009 academic years

Point person, High Performance Liquid Chromatography instrument purchase, 2007-2008

Visiting Assistant Physics Professor search committee member, 2007

Visiting Assistant Biology Professor search committee member, 2007

At UW-Madison

Co-founder – UW-Madison Postdoc Group, 2004

Graduate student representative – Biomolecular Chemistry Program Committee, 2000-2001

Professional Membership

American Society for Microbiology