James Luba

22 NORFORK DR MAUMELLE, AR 72113

TEL 501-319-5854

jimluba@me.com

Experience

Chemistry Instructor, Arkansas School for Mathematics, Sciences, and the Arts: 8/13/09-Current

As a chemistry instructor at ASMSA I am responsible for the design and execution of an innovative science curriculum to gifted and talented 11th and 12th graders from all regions of Arkansas. I have focused on the development of multidisciplinary curriculum and have a strong record of participation in STEM outreach activities.

Assistant Professor, Department of Chemistry, University of Arkansas at Little Rock: 08/23/03-05/25/09

As a member of the UALR faculty I was responsible for generating and implementing an innovative undergraduate and graduate chemistry curriculum. Additionally I ran a research laboratory and supervised graduate and undergraduate students involved in my research program. I generated extramural research funding, served the UALR community, and represented UALR in the local area. During my time at UALR I was the PI or Co-PI on grants totaling over $400,000, modernized instruction in biochemistry, and focused on recruiting students from under-represented populations into the field of chemistry.

Research Fellow, (Advisor: Dr. David Silverman) Department of Pharmacology and Therapeutics, University of Florida College of Medicine: 04/04/01 – 06/20/03

My research involved increasing the understanding of how enzymes tune the redox potential of metal cofactors. I accomplished this goal by measuring the redox potential of the Mn ion cofactor in Mn-Superoxide dismutase and Mn-Superoxide dismutase with active site point mutations.

Research Scientist, Oxalate Division, Ixion Biotechnology: 06/29/00 – 03/30/01

As the leader of a research team I guided the development of natural product and recombinant protein formulations to lower dietary oxalate intake and treat the disease Primary Hyperoxaluria. The major laboratory techniques I used were pilot scale recombinant protein overexpression, pilot scale protein purification, protein stabilization, purification and analysis of small organic molecules by HPLC.

Research Instructor, Department of Biochemistry, Wake Forest University School of Medicine: 08/01/99 – 06/20/00

As an independent investigator I developed a project to study the function of Staphylococcal glutathione peroxidase homologs in addition to continuing studies of Coenzyme A Disulfide Reductase. I was additionally responsible for the mentoring graduate students and maintenance of laboratory instrumentation including an Applied Photophysics Stopped-Flow Spectrophotometer..

Research Fellow, (Advisor: Dr. Al Claiborne) Department of Biochemistry, Wake Forest University School of Medicine: 9/29/97 – 7/31/99

The focus of my research was the enzyme Coenzyme A Disulfide Reductase from *Staphylococcus aureus*. The major laboratory techniques I used were protein over-expression, protein purification, steady state kinetic analysis, rapid kinetic analysis by stopped flow spectroscopy, rapid kinetic analysis by rapid quench, and protein crystallization.

Education

University of Massachusetts School of Biomedical Sciences, Worcester, MA— PhD Pharmacology, 1997

State University of New York at Geneseo, Geneseo, NY — BS Biochemistry, 1992

Administrative Experience

President of ASMSA Governing Council: 2013-2014

The ASMSA Governing Council reviews policies and documents prepared by policy committees for consideration by the Director. As president I set the agenda for meetings, presided at meetings, and served as a liaison to the Director.

Principle Investigator of a Research Laboratory at the University of Arkansas at Little Rock: 08/23/03-05/25/09

As the head scientist in a research laboratory I had oversight of $100,000 of start-up funds and a $42,000 extramural grant from Research Corporation. I supervised the research effort of graduate and undergraduate students, and provided mentorship and training of graduate and undergraduate researchers.

Graduate Coordinator for the Department of Chemistry at the University of Arkansas at Little Rock: 2005-2008

As graduate coordinator I oversaw the recruitment of applicants, chaired the graduate committee, and led the decision process regarding admission and the allocation of graduate fellowships. Additionally, I was responsible developing an assessment plan and using the results to improve our graduate program.

Curriculum Design

Arkansas School for Mathematics, Sciences, and the Arts

Infectious Disease in History and Culture, an interdisciplinary class examining the effects of infectious disease on human biology and civilization, co-taught with a member of the ASMSA humanities faculty.

Chemistry and Society, a chemistry class designed for students completing the ASMSA Humanities Emphasis

Health Careers Forum, a series of seminars that allowed students to explore a variety of careers in the health care industry.

University of Arkansas at Little Rock

Chem 4360/5360 Medicinal Chemistry, an interdisciplinary graduate and undergraduate class examining the physical, chemical, and biological properties of drug molecules.

Chem 4421/5421 Biochemistry II, a graduate and undergraduate class continuing the study of biochemistry from Chem 4420/5420.

Chem 7358 Enzyme Structure and Function and Chem 7360 Metabolism were mixed lecture and seminar classes for senior graduate students.

Community Outreach

Science and Engineering Institutes at the Arkansas School for Mathematics Sciences and the Arts 2010 - 2013

Provided a chemistry laboratory experience for 6th through 10th graders from all regions of Arkansas.

McNair Scholars Mentor at the University of Arkansas at Little Rock 2007

Research mentor to an undergraduate student from a demographic that is under-represented in the sciences.

American Chemical Society Project Seed Mentor 2005

Project SEED is a summer research internship program for economically disadvantaged high school students. I supervised a student's research effort in my laboratory at the University of Arkansas at Little Rock.

Arkansas STRIVE Mentor 2005

Arkansas STRIVE places middle, junior high and senior high school STEM teachers in academic and industrial research positions. I supervised a high school biology teacher's research effort in my laboratory at the University of Arkansas at Little Rock.

University of Massachusetts School of Biomedical Sciences Minority Outreach Program 1995 and 1996

Mentored high school students in summer research projects.

Grants

Principle Investigator

Cottrell College Science Award CC6186. Biochemical Activity of Glutathione Peroxidase Homologs from *Staphylococcus aureus*. $42,000, 2004-2005

Co-Principle Investigator

National Science Foundation Award 0421422. Acquisition of an HPLC-MS Instrument for Research and Training. $242,422, 2004-2007

National Science Foundation Award 0541726. Acquisition of an ESR Instrument for Research and Training. $158,240, 2004-2007

Awards

University of Arkansas at Little Rock

Department of Chemistry Nominee for CSAM Excellence in Teaching award, 2008.

Northrop Young Researcher Award, 2006

University of Massachusetts School of Biomedical Sciences

Hybridon Graduate Research Fellowship, 1994.

Graduate Students

University of Arkansas at Little Rock

Preeti Tripathi, MS 2008

Raja Machana (co-advisor), MS 2007

Harish Gosike (co-advisor), MS 2007

Undergraduate Research Students

University of Arkansas at Little Rock

Crystal Wesley

Kristi Kelly

Kathryn Hyde

Matt Lancaster

David Ward

Publications

Articles

1) Chockalingam K, Luba J, Nick HS, Silverman DN, Zhao H.: Engineering and characterization of human manganese superoxide dismutase mutants with high activity and low product inhibition. FEBS J. 273: 4853-4861 (2006).

2) Hearn AS, Fan L, Lepock JR, Luba JP, Greenleaf WB, Cabelli DE, Tainer JA, Nick HS, Silverman, DN.: Amino acid substitution at the dimeric interface of human manganese superoxide dismutase. J Biol Chem. 279, 5861-58666 (2004).

3) Hearn, A. S., Stroupe, M. E., Cabelli, D. E., Ramilo, C. A., Luba, J., Tainer, J. A., Nick, H. S., Silverman, D. N.: Catalytic and Structural Effects of Amino-Acid Substitution at His 30 in Manganese Superoxide Dismutase: Insertion of Val $C\gamma$ into the Substrate Access Channel. Biochemistry 42: 2781-2789 (2003).

4) McGee, M. P., Liang, J., Luba, J.: Hydration effects of heparin on antithrombin probed by osmotic stress. Biophys J. 2002, 82, 1040-1049 (2002).

5) Gourley, D., Schüttelkopf, A., Leonard, G., Luba, J., Hardy, L., Beverley, S., and Hunter, W.: Structure and reactivity of Pteridine reductase; two mechanisms for reduction correlate pterin metabolism and antifolate drug resistance in trypanosomatids. Nature: Structural Biology, 8, 521-525 (2001).

6) Crane, E. J., III, Yeh, J. I., Luba, J., and Claiborne, A.: Analysis of the kinetic and redox properties of the NADH peroxidase R303M mutant: correlation with the crystal structure. Biochemistry 39, 10353-10364 (2000).

7) Charrier, V., Luba, J., Parsonage, D., and Claiborne, A.: Limited proteolysis as a structural probe of the soluble α-glycerophosphate oxidase from *Streptococcus* sp. Biochemistry 39, 5035-5044 (2000).

8) Claiborne, A., Yeh, J. I., Mallet, T.C., Luba, J., Crane III, E. J., Charrier, V., and Parsonage, D.: Protein-Sulfenic acids: Diverse roles for an unlikely player in enzyme catalysis and redox regulation. Biochemistry 38, 15407-15416 (1999).

9) Gourley, D., Luba, J., Hardy, L., Beverley, S., and Hunter, D.: Crystallization of recombinant *Leishmania major* Pteridine Reductase 1 (PTR1). Acta Crystallographica D55, 1608-1610 (1999).

10)Luba, J., Charrier, V., and Claiborne, A.: Coenzyme A-disulfide reductase from *Staphylococcus aureus*: Evidence for asymmetric behavior on interaction with pyridine nucleotides. Biochemistry 38, 2725-2737 (1999).

11)Parsonage, D., Luba, J., Mallett, T. C., and Claiborne, A.: The soluble α-glycerophosphate oxidase from *Enterococcus casseliflavus*: sequence homology with the membrane-associated dehydrogenase and kinetic analysis of the recombinant enzyme. J. Biol. Chem. 273, 23812-23822 (1998).

12)Luba, J., Nare, B., Luong, P., Anderson, K., Beverley, S., and Hardy, L.: *Leishmania major* pteridine reductase 1 (PTR1) belongs to the short chain dehydrogenase family: stereochemical and kinetic evidence. Biochemistry 37, 4093-4104 (1998).

13)Nare, B., Luba, J., Hardy, L., and Beverley, S.: New approaches to *Leishmania* chemotherapy: pteridine reducatse 1 (PTR1) as a target and modulator of antifolate sensitivity. Parasitology 114, S101-S110 (1997).

Book Chapters

1) Claiborne, A., Mallett, T. C., Yeh, J. I., Luba, J., and Parsonage, D.: Structural, redox, and mechanistic parameters for cysteine-sulfenic acid function in catalysis and regulation. Adv. Protein Chem. 58: 215-76 (Klinman, J. P. and Dove, J. E., eds.) Academic Press (2001).

Abstracts

1) Luba, J. and Lancaster, M. Utilization of Glutathione by *Staphylococcus aureus*. (Poster presented at ACS SWRM, Little Rock AR). 2008

2) Ward, D.I., Biris, A., Luba, J.: Raman Spectroscopic Analysis of *Staphylococcus aureus* and its Potential for Creating Virulence Profiles. (Poster presented at the national ACS Conference, New Orleans, LA) 2007:.

3) Lancaster, M. and Luba, J.: The Role of Glutathione in the *Staphylococcus aureus* Response to Hydrogen Peroxide. (Poster presented at the national ACS Conference, New Orleans LA). 2007

4) Danchenko, S., Hart, M., Edmondson, R., Jones, R., Luba, J.: Comparative Proteomics of *Staphylococcus aureus* and the Response to Oxidative Stress. (Poster presented at Biochemistry Division ACS Conference, San Francisco, CA). 2005

5) Wesley, C., Luba, J.: Glutathione Peroxidase Homologs in *Staphylococcus aureus*. (Poster presented at the ACS Conference, San Francisco, CA). 2004

6) Luba, J., Mallett, T. C., and Claiborne, A.: Structural and kinetic studies of Coenzyme A disulfide reductase from *Staphylococcus aureus*. (Poster presented at the 17th Enzyme Mechanisms Conference, Marco Island, Florida 1/3-1/6/01). 2001

7) Sidhu, H., Chow, J., Luba, J., and Peck, A.: Commercial Applications of the Oxalate Degrading Bacterium, *Oxalobacter formigens*. (Presentation presented by H. Sidhu at Oxalosis and Calcium Oxalate Stone Disease Symposium, Columbia Maryland). 2000

8) McGee, M.P. and Luba, J.: Water-transfer measurement during antithrombin interaction with heparin using osmotic stress and stopped-flow techniques. (Poster presented at the 44th Annual Biophysical Society Meeting, New Orleans, Louisiana). 2000

9) Luba, J., Claiborne, A.: Kinetic Isotope Effects on Coenzyme A Disulfide Reductase. (Poster presented at the 13th International Congress on Flavins and Flavoproteins, Konstanz, Germany. 1999

10)Cherrier, V., Parsonage, D., Luba, J., Claiborne, A.: Domain structure and kinetic analysis of *Streptococcus* sp. L-α-glycerophosphate oxidase. (Poster presented at the 13th International Congress on Flavins and Flavoproteins, Konstanz, Germany. 1999

11)Luba, J., Claiborne, A.: Kinetic analysis of Coenzyme A disulfide reductase(C43S) from *Staphylococcus aureus*. (Poster presented at the 16th Enzyme Mechanisms Conference, Napa, California. 1999

12) Cherrier, V., Parsonage, D., Luba, J., Claiborne, A.: Domain structure and kinetic analysis of *Streptococcus* sp. L-α-glycerophosphate oxidase. (Poster presented at the 16th Enzyme Mechanisms Conference, Napa, California. 1999

13)Luba, J., Hardy, L.: Mechanistic studies of *Leishmania major* pteridine reductase 1. (Poster presented at FASEB Conference). 1996

14) Luba, J., Hardy, L.: Mechanistic Studies of *Leishmania major* pteridine reductase 1. (Poster presented at the New England Pharmacologists Meeting, Burlington, Vermont 2/1-2/3/95). 1995

References

1) Dr Jeff Gaffney, Chair, Department of Chemistry, UALR
Phone: (501) 569-8840
email: jsgaffney@ualr.edu

2) Dr Mark Smeltzer, Professor, Department of Microbiology and Immunology, UAMS
Phone: (501) 686-7958
email: smeltzermarks@uams.edu

3) Dr Brian Monson, Science Department Chair, ASMSA
Phone: (501) 622-5242
email: monsonb@asmsa.org

4) Dr. John Fowlkes, Division Chief Pediatric Endocrinology, ACH
Phone: (501) 364-1430
email: FowlkesJohnL@uams.edu