Caryn Elizabeth Outten

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EDUCATION AND TRAINING

2001–2005	**Postdoctoral Fellow**	Johns Hopkins University, Baltimore, MD
2001	**Ph.D.** Chemistry	Northwestern University, Evanston, IL
1996	**M.S.** Chemistry	Northwestern University, Evanston, IL
1995	**B.S.** Biology & Chemistry	College of William and Mary, Williamsburg, VA

PROFESSIONAL APPOINTMENTS

2018–	**Professor**	Dept Chem & Biochem, USC, Columbia, SC
2013–	**Guy F. Lipscomb Professor of Chemistry**, USC	
2014	**Visiting Professor**	Dept Chem & Biochem, Univ Colorado-Boulder
2012–2013	**College of Arts and Sciences Distinguished Professor**, USC	
2012–2017	**Associate Professor**	Dept Chem & Biochem, USC
2005–2012[1]	**Assistant Professor**	Dept Chem & Biochem, USC

HONORS AND AWARDS

2020	Distinguished Research Leadership Award, SC Governor's School for Science and Mathematics
2019	American Association for the Advancement of Science (AAAS) Fellow
2019	Michael J. Mungo Undergraduate Teaching Award, University of South Carolina
2016	Garnet Apple Award for Teaching Innovation, USC
2016	Maximizing Investigators' Research Award (MIRA), National Institutes of Health
2013	SC Governor's Young Scientist Award for Excellence in Scientific Research
2013	Guy F. Lipscomb Chair of Chemistry, USC
2012	College of Arts and Sciences Distinguished Professor, USC
2011	*Breakthrough* Rising Star, USC
2009	Presidential Early Career Award for Scientists and Engineers (PECASE), White House Office of Science and Technology Policy
2005	Transition to Independent Positions (TIP) Award, National Institutes of Health

Awards received prior to USC appointment

2002–2004	NIH F32 Ruth L. Kirschstein Postdoctoral Fellowship
2001–2002	NIH T32 Environmental Health Sciences Postdoctoral Traineeship
2001	Departmental Award for Excellence in Graduate Research
1998–2000	NIH T32 Molecular Biophysics Predoctoral Traineeship
1996	L. Carroll King Award for A-level Teaching
1995	William George Guy Prize in Chemistry
1994	Dow Chemical Company Foundation Scholarship
1994	Phi Beta Kappa

[1]Received a 1-year tenure clock extension for maternity leave in 2007

Last updated: Jan 2019

PROFESSIONAL ACTIVITIES

Professional Society Memberships:

2015–	American Association for the Advancement of Science (AAAS)
2014–	American Society for Biochemistry and Molecular Biology (ASBMB)
2009–	American Chemical Society (ACS)
2009–	Society of Biological Inorganic Chemistry (SBIC)

Professional Society Committees:

2016–	*Membership Committee,* American Society for Biochemistry and Molecular Biology (ASBMB)

Editorial Boards/Editorships:

2014–	*Editorial Board,* Journal of Biological Chemistry
2018	*Guest Editor*, Proceedings of the National Academy of Sciences
2013–2017	*Editorial Advisory Board,* Journal of Biological Inorganic Chemistry
2011	*Co-Editor,* Bioinorganic Chemistry Section, Current Opinion in Chemical Biology

Conference Organizer/Discussion Leader/Poster Judge:

July 2021	*Conference Co-Chair*, Cell Biology of Metals Gordon Research Conference, Mt. Snow, VT
Dec 2020	*Symposium Co-Organizer,* International Chemical Conference of Pacific Basin Societies (PACIFICHEM) 2020, Honolulu, Hawaii
June 2020	*Discussion Leader,* FASEB Science Research Conference on Trace Elements in Biology and Medicine, Steamboat Springs, CO
July 2019	*Co-Organizer*, Women in Science Power Hour, Cell Biology of Metals Gordon Research Conference, Castelldefels, Spain
July 2019	*Conference Co-Vice Chair*, Cell Biology of Metals Gordon Research Conference, Castelldefels, Spain
July 2017	*Discussion Leader,* Women in Science Power Hour, Cell Biology of Metals Gordon Research Conference, Mt. Snow, VT
Jan 2017	*Conference Chair*, 49th Annual Southeastern Undergraduate Research Conference (SURC), Columbia, SC
July 2015	*Poster Judge,* Cell Biology of Metals Gordon Research Conference, West Dover, VT
June 2015	*Discussion Leader,* 8th International Conference on Iron-Sulfur Cluster Biogenesis and Regulation, Bergamo, Italy
June 2014	*Conference Co-Chair*, FASEB Science Research Conference on Trace Elements in Biology and Medicine, Steamboat Springs, CO
Jan 2014	*Discussion Leader*, Metals in Biology Gordon Research Conference, Ventura, CA
May 2013	*Conference Co-Chair*, 7th International Conference on Iron-Sulfur Cluster Biogenesis and Regulation, Columbia, SC
Dec 2011	*Symposium Co-Organizer*, Southeast Regional Fe-S Symposium, Columbia, SC
Aug 2009	*Discussion Leader*, Cell Biology of Metals Gordon Research Conference, Newport, RI
July 2007	*Discussion Leader*, Cell Biology of Metals Gordon Research Conference, Newport, RI

Grant Reviews/Panels:

2016, ‘19	*Review Panel Member*, German Research Foundation (DFG), Priority Program
2016, ’18, ’19	*Review Panel Member*, National Institutes of Health, New PI/ESI MIRA
2010, ‘13, ’14, ‘18	*Ad Hoc Reviewer*, French National Research Agency (ANR)
2017	*Ad Hoc Reviewer*, Stanford Synchrotron Radiation Lightsource (SSRL)
2017	*Ad Hoc Reviewer*, National Science Foundation, Chemistry of Life Processes
2015	*Review Panel Member,* National Institutes of Health, ZRG1 BCMB-U
2015	*Ad Hoc Reviewer*, National Institutes of Health, Superfund Research Program
2014	*Ad Hoc Reviewer*, Biotechnology and Biological Sciences Research Council, UK
2014	*Ad Hoc Reviewer*, National Science Foundation, Molecular and Cellular Biosciences
2011, ’14	*Review Panel Member,* National Science Foundation, Chemistry of Life Processes
2013	*Review Panel Member,* National Institutes of Health, ZRG1 BCMB-S Special Emphasis Panel
2013	*Ad Hoc Reviewer*, USC School of Medicine Research Development Fund
2012	*Ad Hoc Reviewer*, Portuguese Foundation for Science and Technology
2010	*Ad Hoc Reviewer*, U.S.-Israel Binational Science Foundation
2009	*Ad Hoc Reviewer*, South Carolina Clinical and Translational Research Institute Pilot Projects Program

Ad Hoc Journal Reviews:

Antioxidants and Redox Signaling
Biochemical Journal
Biochemistry
Biochimica et Biophysica Acta – Molecular Cell Research
Bioinformatics
Biophysical Journal
BMC Biochemistry
Chemical Reviews
Current Opinion in Chemical Biology
eLife
Enzyme and Microbial Technology
Eukaryotic Cell
European Biophysics Journal
FEBS Journal
Journal of Biological Chemistry
Journal of Biological Inorganic Chemistry
Journal of Inorganic Biochemistry
Journal of Molecular Biology
Journal of the American Chemical Society
Human Molecular Genetics
mBio
Metallomics
Microbial Cell
Molecular Microbiology
Molecular and Cellular Biology
Nature Chemical Biology
Nucleic Acids Research
PLoS One
Proceedings of the National Academy of Sciences
Yeast

EXTRAMURAL RESEARCH SUPPORT

2016–2021 National Institute of General Medical Sciences (NIGMS/NIH), MIRA Research Grant, R35 GM118164: *Mechanisms of Iron and Thiol Redox Regulation in Yeast*, Role: PI. **$2,133,845**

2015–2019 SC Governor's School for Science and Mathematics, SPRI program, research supplies for 14 high school researchers. Role: Mentor. **$7,000** total

2010–2016 National Institute of General Medical Sciences (NIGMS/NIH) Research Grant, R01 GM086619: *Glutathione and Redox Control in the Mitochondrial Intermembrane Space*, Role: PI. **$1,488,778**

2012–2016 National Institute of General Medical Sciences (NIGMS/NIH) Research Grant, R01 GM100069: *Mechanistic Studies of Iron Regulation in Yeast*, Role: PI. **$983,915**

2014–2015 National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK/NIH) Conference Grant, R13 DK102311: *FASEB Science Research Conference on Trace Elements in Biology and Medicine*, Role: PI. **$21,000**

2013–2014 National Institute of General Medical Sciences (NIGMS/NIH) Conference Grant, R13 GM106685: *7th International Conference on Iron-Sulfur Cluster Biogenesis and Regulation*, Role: Co-PI. **$4,000**

2005–2008 National Institute of Environmental Health Sciences (NIEHS/NIH) Transition to Independent Positions Award, K22 ES013780: *Mitochondrial Anti-Oxidant Factors and Redox Status,* Role: PI. **$314,900**

2002–2004 National Institute of General Medical Sciences (NIGMS/NIH) Postdoctoral Fellowship, F32 GM066594: *Genetic Determinants of Hyperoxia Stress*, Role: PI. **$84,740**

INTRAMURAL RESEARCH/TEACHING SUPPORT

2010-2019 SC Honors College, SURF Scholars Research Program: 8 undergraduate researchers supported @ **$26,890** total

2007,12,17 USC Magellan Program, Undergraduate Research Award: 3 undergraduates supported @ **$6,500** total

2015 USC Center for Teaching Excellence, Teaching Innovation Grant in Flipped Course Development (shared 50% with F. W. Outten), Role: PI. **$7,500**

2009,11 SC Steps to STEM Summer Undergraduate Internship: 3 undergraduates supported @ **$7,000** total

2009–2010 USC Research Foundation Research Opportunity Grant: GFP-based Sensors for Measuring Subcellular pH, Role: PI. **$20,000**

2009–2010 USC Center for Colon Cancer Research Seed Grant: Subcellular Redox Balance and Thymidylate Synthase Inhibitors, Role: PI. **$50,000**

2009 USC Undergraduate Research Opportunity: 1 undergraduate (SC State) supported @ **$3,000**

2007–2008 USC Research Foundation Equipment Grant: Acquisition of a Spectropolarimeter for Circular Dichroism and Magnetic Circular Dichroism Measurements, Role: Co-PI. **$41,125**

2007 Howard Hughes Summer Undergraduate Research Award: 1 undergraduate supported @ **$3,000**

2006–2007 USC Research Foundation Equipment Grant: Acquisition of Odyssey Infrared Imaging System for Quantitative Detection of Biomolecules, Role: PI. **$17,333**

PUBLICATIONS (in reverse chronological order)

*C. Outten as corresponding or co-corresponding author
C. Outten postdoc/graduate/undergraduate student authors are underlined

Research Articles

*31. Gupta M, Fletcher K, Wallam S, **Outten CE** (2020) *S. pombe* Grx4 and Fra2 form a [2Fe-2S] binding complex with the iron repressor Fep1. *Manuscript in preparation.*

*30. McGee CC, Bandyopadhyay T, Patterson CE, **Outten CE** (2020) *HGT1* overexpression rescues growth in yeast strains defective in glutathione biosynthesis. *Manuscript in preparation.*

*29. Li H, **Outten CE** (2019) The conserved CDC motif in the yeast iron regulator Aft2 mediates iron–sulfur cluster exchange and protein–protein interactions with Grx3 and Bol2. *J Biol Inorg Chem 24*, 809-815.

28. Ponsero AJ, Igbaria A, Darch MA, Miled S, **Outten CE,** Winther JR, Palais G, D'Autréaux B, Delaunay-Moisan A, Toledano MB (2017) Endoplasmic reticulum transport of glutathione by Sec61 is regulated by Ero1 and Bip. *Molecular Cell 67*, 962-73.

*27. Dlouhy AC, Beaudoin J, Labbé S, **Outten CE** (2017) *Schizosaccharomyces pombe* Grx4 regulates the transcriptional repressor Php4 via [2Fe-2S] cluster binding, *Metallomics 9*, 1096-105.

*26. Dlouhy AC, Li H, Albetel AN, Zhang B, Mapolelo DT, Randeniya S, Holland A, Johnson MK, **Outten CE** (2016) The *Escherichia coli* BolA protein IbaG forms a histidine-ligated [2Fe-2S] bridged complex with Grx4. *Biochemistry 55*(40), 6869-79.

25. Scian M, Guttman M, Bouldin SD, **Outten CE**, Atkins WM (2016) The myeloablative drug busulfan converts cysteine to dehydroalanine and lanthionine in redoxins. *Biochemistry 55*(33), 4720-30.

*24. [1]Ozer HK, [1]Dlouhy AC, Thornton JD, Hu J, Liu Y, Barycki JJ, Balk J, **Outten, CE** (2015) Cytosolic Fe-S cluster protein maturation and iron regulation are independent of the mitochondrial Erv1/Mia40 import system. *J Biol Chem. 290*, 27829-40. [1]Co-first authors

*23. [1]Poor CB, [1]Wegner SV, [1]Li H, Dlouhy AC, Schuermann JP, Sanishvili R, Hinshaw JR, Riggs-Gelasco PJ, [2]**Outten CE,** [2]He C (2014) Molecular mechanism and structure of the *S. cerevisiae* iron regulator Aft2. *Proc Natl Acad Sci USA 111*, 4043-8. [1]Co-first authors, [2]Co-corresponding authors

22. Mapolelo DT, Zhang B, Randeniya S, Albetel AN, Li H, Couturier J, **Outten CE,** Rouhier N, Johnson MK (2013) Monothiol glutaredoxins and A-type proteins: partners in Fe-S cluster trafficking. *Dalton Trans 42*, 3107-15.

*21. [1]Bouldin SD, [1]Darch MA, Hart PJ, **Outten CE** (2012) Redox properties of the disulfide bond of human Cu,Zn superoxide dismutase and the effects of human glutaredoxin 1. *Biochem J 446*, 59-67. [1]Co-first authors

20. Dardalhon M, Kumar C, Iraqui I, Vernis L, Kienda G, Banach-Latapy A, He T, Chanet R, Faye G, **Outten CE**, Huang ME (2012) Redox-sensitive YFP sensors monitor dynamic nuclear and cytosolic glutathione redox changes. *Free Rad Biol Med 52*, 2254-65.

*19. Li H, Mapolelo DT, Randeniya S, Johnson MK, **Outten CE** (2012) Human glutaredoxin 3 forms [2Fe-2S]-bridged complexes with human BolA2. *Biochemistry 51*, 1687-96.

*18. Li H, Mapolelo DT, Dingra NN, Keller G, Winge DR, Johnson MK, **Outten CE** (2011) Histidine 103 in Fra2 is an iron-sulfur cluster ligand in the [2Fe-2S] Fra2-Grx3 complex and is required for in vivo iron signaling in yeast. *J Biol Chem 286*, 867-76.

*17. Li H, Mapolelo DT, Dingra NN, Naik SG, Lees NS, Hoffman BM, Riggs-Gelasco PJ, Huynh BH, Johnson MK, **Outten CE** (2009) The yeast iron regulatory proteins Grx3/4 and Fra2 form heterodimeric complexes containing a [2Fe-2S] cluster with cysteinyl and histidyl ligation. *Biochemistry 48*, 9569-81.

16. Leitch JM, Jenson LT, Bouldin SD, **Outten CE,** Hart PJ, Culotta VC (2009) Activation of Cu,Zn-superoxide dismutase in the absence of oxygen and the copper chaperone CCS. *J Biol Chem 284*, 21863-71.

*15. Hu J, Dong L, **Outten CE** (2008) The redox environment in the mitochondrial intermembrane space is maintained separately from the cytosol and matrix. *J Biol Chem 283*, 29126-34. ***Highlighted in *Chem. Res. Toxicol.* (Dec. 2008)***

*14. Gibson LM, Dingra NN, **Outten CE**, Lebioda L (2008) Structure of the thioredoxin-like domain of yeast glutaredoxin 3. *Acta Crystallogr D Biol Crystallogr 64*, 927-32.

13. Kumanovics A, Chen O, Li L, Bagely D, Adkins E, Lin H, Dingra NN, **Outten CE**, Keller G, Winge D, Ward D, Kaplan J (2008) Identification of *FRA1* and *FRA2* as genes involved in regulating the yeast iron regulon in response to decreased mitochondrial iron-sulfur cluster synthesis. *J Biol Chem 283*, 10276-86.

---------- Publications from Graduate and Postdoctoral Work ----------

12. Carroll MC, **Outten CE**, Proescher JB, Rosenfeld L, Watson WH, Whitson LJ, Hart PJ, Jensen LT, Culotta VC (2006) The effects of glutaredoxin and copper activation pathways on the disulfide and stability of Cu/Zn superoxide dismutase. *J Biol Chem 281*, 28648-56.

11. **Outten CE**, Falk RL, Culotta VC (2005) Cellular factors required for protection from hyperoxia toxicity in *Saccharomyces cerevisiae*. *Biochem J 388*, 93-101.

10. **Outten CE**, Culotta VC (2004) Alternative start sites in the *Saccharomyces cerevisiae GLR1* gene are responsible for mitochondrial and cytosolic isoforms of glutathione reductase. *J Biol Chem 279*, 7785-91.

9. **Outten CE**, Culotta VC (2003) A novel NADH kinase is the mitochondrial source of NADPH in *Saccharomyces cerevisiae*. *EMBO J 22*, 2015-24.

8. Changela A, Chen K, Xue Y, Holschen J, **Outten CE**, O'Halloran TV, Mondragon A (2003) Molecular basis of metal-ion selectivity and zeptomolar sensitivity by CueR. *Science 301*, 1383-7.

7. Banci L, Bertini I, Ciofi-Baffoni S, Finney LA, **Outten CE**, O'Halloran TV (2002) A new zinc-protein coordination site in intracellular metal trafficking: solution structure of the Apo and Zn(II) forms of ZntA(46-118). *J Mol Biol 323*, 883-97.

6. **Outten CE**, O'Halloran TV (2001) Femtomolar sensitivity of metalloregulatory proteins controlling zinc homeostasis. *Science 292*, 2488-92.

5. **Outten CE**, Tobin DA, Penner-Hahn JE, O'Halloran TV (2001) Characterization of the metal receptor sites in *Escherichia coli* Zur, an ultrasensitive zinc(II) metalloregulatory protein. *Biochemistry 40*, 10417-23.

4. Hitomi Y, **Outten CE**, O'Halloran TV (2001) Extreme zinc-binding thermodynamics of the metal sensor/regulator protein, ZntR. *J Am Chem Soc 123*, 8614-5.

3. Outten FW, **Outten CE**, Hale J, O'Halloran TV (2000) Transcriptional activation of an

Escherichia coli copper efflux regulon by the chromosomal MerR homologue, CueR. *J Biol Chem 275*, 31024-9.

2. **Outten CE**, Outten FW, O'Halloran TV (1999) DNA distortion mechanism for transcriptional activation by ZntR, a Zn(II)-responsive MerR homologue in *Escherichia coli*. *J Biol Chem 274*, 37517-24.

1. Althaus EW, **Outten CE**, Olson KE, Cao H, O'Halloran TV (1999) The ferric uptake regulation (Fur) protein is a zinc metalloprotein. *Biochemistry 38*, 6559-69.

Editorials/Reviews

*6. Gupta M, **Outten CE** (2020) Iron-sulfur cluster signaling: the common thread in fungal iron regulation*. Curr Opin Chem Biol, In press*

*5. **Outten CE** (2017) Checks and balances for the iron bank. *J. Biol. Chem. 292*, 15990-1.

*4. **Outten CE**, Albetel AN (2013) Iron sensing and regulation in *Saccharomyces cerevisiae*: Ironing out the mechanistic details. *Curr Opin Microbiol 16*, 662-8.

3. Toledano MB, Delaunay-Moisan A, **Outten CE,** Igbaria A (2013) Functions and cellular compartmentation of the thioredoxin and glutathione pathways in yeast. *Antioxid Redox Signal 18*, 1699-711.

*2. Li H, **Outten CE** (2012) Monothiol glutaredoxins and BolA-like proteins: [2Fe-2S] binding partners in iron regulation. *Biochemistry 51*, 4377-89.

*1. Frey PA, **Outten CE** (2011) Forging ahead: new mechanistic insights into iron biochemistry. *Curr Opin Chem Biol 15*, 257-9.

Book Chapters

*4. Albetel AN, **Outten CE** (2018) Characterization of glutaredoxin Fe-S cluster binding interactions using circular dichroism spectroscopy. In *Meth Enzymol*, S David, Ed.; Vol. 599, p. 327-53.

*3. **Outten CE** (2014) The role of Fe-S clusters in yeast iron regulation. In *Iron-Sulfur Clusters in Chemistry and Biology*, T Rouault, Ed. Verlag Walter de Guyter GmbH, Berlin, Germany; p. 411-36.

*2. Dlouhy AC, **Outten CE** (2013) The iron metallome in eukaryotic organisms. In *Metallomics and the Cell*, L Banci, Guest Ed.; Vol. 12 of "Metal Ions in Life Sciences," A Sigel, H Sigel, and RKO Sigel, Series Eds.; Springer Science and Business Media B.V.: Dordhecht, Netherlands; 12, 241-78.

---------- Publications from Graduate Work ----------

1. Outten FW, **Outten CE**, O'Halloran TV (2000) Metalloregulatory systems at the interface between bacterial metal homeostasis and resistance. In *Bacterial Stress Responses*, G Storz and R Hengge-Aronis, Eds.; ASM Press: Washington, D.C.: 145-160.

INVITED SEMINARS at Scientific Meetings

34. International Chemical Congress of Pacific Basin Societies (Pacifichem) 2020, Honolulu, Hawaii: December 15-20, 2020

33. FASEB Science Research Conference, Trace Elements in Biology and Medicine, Steamboat Springs, CO: May 31-June 5, 2020
32. *Keynote speaker,* 10th International Conference on Iron-Sulfur Proteins: Biogenesis, Regulation, and Function, Sainte-Maxime, France: April 6-10, 2020
31. 19th International Conference on Biological Inorganic Chemistry (ICBIC19), Interlaken, Switzerland: August 11-16, 2019
30. 257th ACS National Meeting, Alfred Bader Award in Bioinorganic or Bioorganic Chemistry: Symposium in Honor of Joan B. Broderick, Orlando, FL: March 31-April 4, 2019
29. FASEB Science Research Conference, Trace Elements in Biology and Medicine, Tahoe City, CA: June 3-8, 2018
28. 2018 Steenbock Symposium on Iron-Sulfur Proteins – Biogenesis, Regulation and Function, Madison, WI: May 29-June 2, 2018 (declined invitation due to schedule conflict)
27. ASBMB 2018 Annual Meeting, San Diego, CA: April 21-25, 2018
26. EMBO Workshop on Thiol Oxidation in Toxicity and Signaling, Sant Feliu du Guixols, Spain: September 17-21, 2017
25. 100th Annual Meeting of the Canadian Society for Chemistry (CSC), Toronto (Ontario), Canada: May 28-June 1, 2017
24. 6th Georgian Bay International Conference on Bioinorganic Chemistry (CanBIC-6), Parry Sound (Ontario), Canada: May 23-27, 2017
23. Chicago Region Physical Sciences-Oncology Center Symposium: Metallomes, Mito-tones and Chromosomes, Northwestern University, Evanston, IL: May 8-9, 2017
22. Southeastern Regional Meeting of the American Chemical Society (SERMACS), Columbia, SC: October 23-26, 2016
21. International Chemical Congress of Pacific Basin Societies (Pacifichem) 2015, Honolulu, Hawaii: December 15-20, 2015
20. 17th International Conference on Biological Inorganic Chemistry (ICBIC17), Beijing, China: July 20-24, 2015
19. Mosbacher Kolloquium 2015, Spring Meeting of the German Society for Biochemistry and Molecular Biology, Mosbach, Germany: March 25-28, 2015
18. 16th International Conference on Biological Inorganic Chemistry (ICBIC16), Grenoble, France: July 22-26, 2013
17. Cell Biology of Metals Gordon Research Conference, Newport, RI: July 28-August 2, 2013
16. 96th Canadian Chemistry Conference, Special Symposium on Metallomics - Metal Speciation within Living Cells, Québec City, Canada: May 26-30, 2013 (declined invitation due to schedule conflict)
15. 21st Annual Suddath Symposium, Georgia Institute of Technology, Atlanta, GA: February 21-23, 2013
14. FASEB Science Research Conference, Trace Elements in Biology and Medicine, Steamboat Springs, CO: June 10-15, 2012
13. European Science Foundation: Glutathione and Related Thiols; Barcelona, Spain, September 6-11, 2011
12. Free Radicals in Brazil 2011, Sao Paulo, Brazil: August 13-21, 2011 (declined invitation due to conflict in schedule)
11. 6th International Conference on Iron-Sulfur Cluster Biogenesis and Regulation, Cambridge, UK: August 24, 2011
10. Cell Biology of Metals Gordon Research Conference, Newport, RI: August 4, 2011
9. Metals in Biology Gordon Research Conference, Ventura, CA: January 31, 2011
8. 7th International Biometals Symposium, Tucson, AZ, July 26, 2010

7. 29th Summer Symposium in Molecular Biology, “Frontiers in Metallobiochemistry”, Pennsylvania State University, University Park, PA: June 2-5, 2010
6. Thiol-Based Redox Regulation and Signaling Gordon Research Conference, Barga, Italy: May 11, 2010
5. 5th International Conference on Iron-Sulfur Cluster Biogenesis and Regulation, Athens, GA: August 31, 2009
4. 14th International Conference on Biological Inorganic Chemistry (ICBIC14), Nagoya, Japan: July 26, 2009
3. FASEB Science Research Conference, Trace Element Metabolism: From Model Organisms to Humans, Snowmass, CO: June 17, 2008
2. Cell Biology of Metals Gordon Research Conference, Newport, RI: July 30, 2007

---------- Invited Conference Seminars as Graduate Researcher ----------

1. Gordon Research Conferences, Graduate Research Seminar in Bioinorganic Chemistry, Ventura, CA: January 27-30, 2000

INVITED SEMINARS at Academic Institutions

44. Temple University, Department of Chemistry, Philadelphia, PA: November 21, 2019
43. Clemson University, Department of Biological Sciences, Clemson, SC: September 27, 2019
42. Northwestern University, 8th Annual Biophysics Symposium, Distinguished Alumna Speaker, Evanston, IL: June 14, 2017
41. Western Carolina University, Department of Chemistry & Physics, Cullowhee, NC: February 10, 2017
40. University of South Carolina, Department of Chemistry and Biochemistry, Promotion Seminar, Columbia, SC: January 20, 2017
39. Stony Brook University, Department of Biochemistry & Cell Biology, Stony Brook, NY: November 4, 2016
38. Indiana University, Molecular and Cellular Biochemistry Department, Bloomington, IN: February 19, 2016
37. Tianjin University, School of Pharmaceutical Science and Technology, Tianjin, China: July 20, 2015
36. Georgia State University, Department of Chemistry, Atlanta, GA: May 1, 2015
35. College of William and Mary, Department of Chemistry, Williamsburg, VA: April 10, 2015
34. University of South Carolina, Department of Chemistry and Biochemistry, Sabbatical Seminar, Columbia, SC: February 20, 2015
33. Texas A&M University, Department of Chemistry, College Station, TX: May 7, 2014
32. University of North Florida, Department of Chemistry, Jacksonville, FL: October 12, 2012
31. Winthrop University, Department of Chemistry, Rock Hill, SC: September 6, 2012
30. University of Nebraska Redox Biology Center, Lincoln, NE: March 6, 2012
29. University of South Carolina, Department of Chemistry and Biochemistry, Tenure & Promotion Seminar, Columbia, SC: September 23, 2011
28. Montana State University, Department of Chemistry and Biochemistry, Bozeman, MT: September 13, 2011
27. University of Maryland, Department of Pharmaceutical Sciences, Baltimore, MD: April 6, 2011
26. International Year of Chemistry 2011 Symposium, Washington College, Department of Chemistry, Chestertown, MD: April 5, 2011

25. Johns Hopkins University, Bloomberg School of Public Health, Department of Biochemistry and Molecular Biology, Baltimore, MD: April 4, 2011
24. College of William and Mary, Department of Chemistry, Williamsburg, VA: April 1, 2011
23. University of Delaware, Department of Chemistry, Wilmington, DE: March 7, 2011
22. Freie Universität Berlin, Institute of Chemistry and Biochemistry, Berlin, Germany: May 7, 2010
21. University of South Carolina, Department of Chemistry and Biochemistry, Columbia, SC: January 15, 2010
20. University of South Carolina, Department of Chemistry and Biochemistry, Columbia, SC: September 22, 2009
19. University of Kentucky, Department of Chemistry, Lexington, KY: September 18, 2009
18. Hokkaido University, Division of Chemistry, Hokkaido, Japan: July 24, 2009
17. University of South Carolina, School of Medicine, Biomedical Sciences, Columbia, SC: April 20, 2009
16. Columbia College, Department of Biological and Physical Sciences, Columbia, SC: March 2, 2009
15. University of Arizona, Department of Biochemistry and Molecular Biophysics, Tucson, AZ: January 23, 2009
14. Medical University of South Carolina, Department of Pharmaceutical Sciences, Charleston, SC: September 2, 2008
13. University of Georgia, Department of Chemistry, Athens, GA: November 5, 2007
12. College of Charleston, Department of Chemistry and Biochemistry, Charleston, SC: September 13, 2007
11. Francis Marion University, Science Colloquium, Florence, SC: February 22, 2007

---------- Invited Institutional Seminars as Postdoctoral Researcher ----------

10. University of Maryland Biotechnology Institute, Medical Biotechnology Center, Baltimore, MD: January 26, 2005
9. Uniformed Services University of the Health Sciences, Department of Biochemistry and Molecular Biology, Bethesda, MD: January 18, 2005
8. Dartmouth College, Department of Biology, Hanover, NH: January 10, 2005
7. Old Dominion University, Department of Chemistry and Biochemistry, Norfolk, VA: January 4, 2005
6. DuPont Central Research, Biological and Chemical Sciences and Engineering Division, Wilmington, DE: December 14, 2004
5. University of South Carolina, Department of Chemistry and Biochemistry, Columbia, SC: December 2, 2004
4. George Mason University, Department of Chemistry and Biochemistry, Fairfax, VA: November 18, 2004
3. Oberlin College, Department of Chemistry, Oberlin, OH: November 9, 2004
2. National Institutes of Health Yeast Club, Bethesda, MD: June 9, 2004
1. 2000 Award for Excellence in Graduate Research, Northwestern University, Department of Chemistry, Evanston, IL: October 12, 2001

RESEARCH GROUP

Postdoctoral/Research Associates: 3 total, 1 current
Graduate students: 18 total, 5 current
Undergraduate students: 23 total, 3 current
High school students: 14 total, 0 current

Ph.D. Dissertations Supervised -

10. Malini Gupta, *Investigating the Transcriptional Regulation of Iron Sulfur Cluster Signaling in Yeast,* **2020**
9. Crystal Conaway McGee, *Impact of Glutathione Transporters on Subcellular Glutathione Pools and Cell Survival in Saccharomyces cerevisiae*, **2019**
8. Hatice K. Ozer, *The Role of Intermembrane Space Redox Factors in Glutathione Metabolism and Intracellular Redox Equilibrium*, **2015**
7. Maxwell A. Darch, *Subcellular Glutathione Distribution During Severe Redox Stress and Characterizing Thiol Redox Control of Human Cu, Zn Superoxide Dismutase,* **2015**
6. Adrienne C. Dlouhy, *Illuminating the Interactions and Functions of Glutaredoxins, BolA Proteins, and Erv1 in Iron Homeostasis*, **2015**
5. Haoran Li, *Characterization and Functional Studies of Fe-S Cluster Binding in Monothiol Glutaredoxin-BolA Complexes Regulating Iron Homeostasis*, **2011**
4. Nin N. Dingra, *Characterization of the Role of Glutaredoxin 3 and its Binding Partners in Maintaining Iron Homeostasis in Saccharomyces cerevisiae*, **2010**
3. Jingjing Hu, *Investigating Subcellular Thiol Redox Chemistry with GFP-Based Redox Sensors*, **2010**
2. Samantha D. Bouldin, *Characterizing Factors that Influence Intracellular Thiol-Disulfide Equilibrium*, **2010**
1. Matthew Blatnik, *Succination of Proteins by Fumarate – A Novel Mechanism for Regulation of Metabolism in Diabetes and Oxidative Stress* (co-advisor with John Baynes), **2008**

M.S. Theses Supervised -

4. Kirsten R. Collins, *Investigating the Effects of Glutathione and Other Key Proteins on Iron Homeostasis and Subcellular Redox Balance in Yeast Model Systems*, **2016**
3. John Hepburn, *Investigating Cross Talk Between the High and Low Iron Sensors in Saccharomyces cerevisiae*, **2016**
2. Zuqin Xue, *Using GFP-Based Redox and pH Sensors to Monitor Glutathione Metabolism in the Mitochondrial Intermembrane Space*, **2011**
1. Lixue Dong, *Development and Validation of In Vivo Sensors of Mitochondrial Redox Status*, **2009**

TEACHING EXPERIENCE

Undergraduate Courses: (enrollment)

Chem 655/Biol 599, Metabolic Biochemistry of Human Disease (30)	Fall 2015-2019
STEM 101, Invited lecturer on biochemistry careers (20)	Fall 2009-2011
Chem 555/Biol 545, Principles of Biochemistry (60)	Fall 2005

Graduate Courses:

Chem 752/Biol 718, Regulation and Integration of Metabolism 25)	Spring 2008-2020
Chem 701, Biochemistry Divisional Seminar (30)	Spring 2007, 2011-20

School of Medicine Courses:

Chem D650, Medical Biochemistry (100)	Fall 2006-2013

SERVICE ACTIVITIES

Departmental Committees:

2019–	*Member*, Integrated Biomedical Sciences Graduate Admissions Committee
2006–	*Academic Advisor*, Chemistry, Biochemistry and Molecular Biology majors
2015–2019	*Chair*, Graduate Recruiting Committee
2017–2018	*Chair*, Bioorganic Faculty Search Committee
2012–2013	*Member*, Cancer Therapeutics Faculty Search Committee
2011–2013	*Member*, Web Committee
2011–2012	*Secretary*, Structural Biology Faculty Search Committee
2011–2012	*Secretar*y, Biochemistry & Molecular Biology Faculty Search Committee
2008–2015	*Member*, Graduate Recruiting Committee
2006–2008	*Member*, Graduate Admissions Committee
2005–2012	*Member*, Library Committee

College/University Committees & Services:

2020–	*Faculty Fellow*, USC Connect, Office of the Provost
2020–	*Member*, Michael J. Mungo Undergraduate Teaching Award Committee
2019–	*Member*, Academic Policies and Practices Committee, USC Graduate School
2019–	*Member*, College of Arts and Sciences Admissions Council
2018–	*Member*, Committee on Named and Distinguished Professorships, Office of the Provost
2013–	*Mentor*, Carolina and McNair Scholars Program
Oct. 2019	*Featured Faculty,* Gamecock Teaching Days, USC College of Arts and Sciences Incubator for Teaching Innovation
Nov. 2018	*Panelist,* “Conversations about Teaching”, USC College of Arts and Sciences Incubator for Teaching Innovation
Oct. 2018	*Presenter,* “Flipped Learning in the Science Classroom”, Octoberbest 2018: A Celebration of Teaching, USC Center for Teaching Excellence
2017–2018	*Member*, College of Arts and Sciences Dean’s Advisory Panel
2016–2017	*Member*, College of Arts and Sciences Academic Planning Council
2016, 2017	*Instructor*, McNair Scholar Candidates Weekend, Sample Course
2016, 2017	*Instructor*, Carolina Scholar Candidates Weekend, Sample Course
2016	*Presenter*, STEM Active Learning Workshop, Center for Teaching Excellence
2015–2017	*Member*, Graduate Council
2015–2017	*Member*, Committee on Science, Math and Related Professional Programs (Graduate Council)
2014	*Panel Membe*r, Women in Science Support Network (Wi-Sci) workshop
2013–2014	*Member*, SPARC Graduate Fellowship Review Committee
2013	*Panel Member*, Power Lunch for Columbia Tenure-Track Faculty
2012–2015	*Member*, Integrated Biomedical Sciences Graduate Program Steering Committee
2010	*Member*, College of Arts and Sciences Stockroom Committee
2010-2014	*Member*, Carolina and McNair Scholars Selection Committee
2010	*Panel Member*, USC Women and Science and Engineering (WISE) presentation on graduate studies in chemistry and biochemistry
2010–2011	*Member*, Fellowship and Scholarship Committee of the Graduate Council
2008	*Judge*, USC School of Medicine’s Newton Symposium of Graduate Research
2007–2008	*Mentor*, USC Women’s Mentor Network

Community Outreach

2016–2019	*Research Mentor*, Research Experience Scholars Program, SC Governor's School for Science and Mathematics International Exchange
2015–2019	*Research Mentor*, SPRI Program, SC Governor's School for Science and Mathematics
2016, 2017	*Judge*, SC Academy of Science Annual Meeting
2015–2017	*Judge*, SC Junior Science and Humanities Symposium
2014–2017	*Council Member*, South Carolina Academy of Science
2009–2017	*Soccer Coach*, YMCA Recreational Youth Soccer League
2008	*Coordinator*, Science Wednesday at the Children's Center at USC