REZA GHILADI
Assistant Professor of Chemistry
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Professional Experience

Assistant Professor	2006-present
Department of Chemistry, North Carolina State University	
National Institutes of Health Postdoctoral Fellow (NRSA, F32)	2003-2005
University of California, San Francisco, CA	
Kendall-Mayo Fellow in Biochemistry	2001-2003
Mayo Clinic and Foundation, Rochester, MN	

Education

Haverford College (Haverford, PA)	Chemistry	B.S. 1995
Johns Hopkins University (Baltimore, MD)	Chemistry	M.A. 1997
Johns Hopkins University (Baltimore, MD)	Chemistry	Ph.D. 2001
Mayo Clinic and Foundation (Rochester, MN)	Biochemistry	2001-2003
University of California (San Francisco)	Pharmaceutical Chemistry	2003-2006

Other Experience

2009-present Director of Undergraduate Research, Chemistry Department, NC State University
2009-2011 Co-Director, NC State University NSF REU program in Chemistry

Awards and Honors

2004-2006 NIH Postdoctoral Fellow (NRSA, F32)
2001-2003 Kendall-Mayo Fellow in Biochemistry

Publications

1. Cade, C.; Medzihradszky, K. F.; Salas-Castillo, S.P.; Ghiladi, R. A. "Isoniazid-Resistance Conferring Mutations in *Mycobacterium tuberculosis* KatG: Catalase, Peroxidase, and INH-NADH Adduct Formation Activities" *Protein Sci*., **2010**, *in Press*.
2. Feese, E. and Ghiladi, R. A. "Highly Efficient Photodynamic Inactivation of Mycobacterium smegmatis" *J. Antimicrob. Chemother*., **2009**, 64, 782-785
3. Maiti, D.; Woertink, J. S.; Ghiladi, R. A.; Solomon, E. I.; Karlin, K. D.* "Molecular Oxygen and Sulfur Reactivity of a Cyclotriveratrylene Derived Trinuclear Copper(I) Complex" *Inorg. Chem.,* **2009**, 48, 8342-8356
4. Feducia, J.; Dumarieh, R.; Gilvey, L. B. G.; Smirnova, T.; Franzen, S.; Ghiladi, R. A "Characterization of Dehaloperoxidase Compound ES and its Reactivity with Trihalophenols" *Biochem*., **2009**, *48*, 995-1005.
5. R. A. Ghiladi, E. Chufan, D. del Río, E. I. Solomon, C. Krebs, B. H. Huynh, H.-w. Huang, P. Moënne-Loccoz, S. Kaderli, M. Honecker, A. D. Zuberbühler, L. Marzilli, R. J. Cotter, and K. D. Karlin. "Further Insights into the Spectroscopic Properties, Electronic Structure and Kinetics of Formation of the Heme-Peroxo-Copper Complex [$(F_8TPP)Fe^{III}$-

(O_2^{2-})-Cu^{II}(TMPA)]$^{+}$" *Inorg. Chem*., **2007**, *46*, 3889-3902.
6. R. A. Ghiladi, K. F. Medzihradszky, and P. R. Ortiz de Montellano. "The Role of the Met-Tyr-Trp Crosslink in *Mycobacterium tuberculosis* Catalase-Peroxidase (KatG) as Revealed by KatG(M255I)" *Biochem*. **2005**, *44*, 15093-15105.
7. R. A. Ghiladi, K. F. Medzihradszky, F. M. Rusnak, and P. R. Ortiz de Montellano. "Correlation Between Isoniazid Resistance and Superoxide Reactivity in *Mycobacterium tuberculosis* KatG" *J. Am. Chem. Soc.* **2005**, *127*, 13428-13442.
8. R. A. Ghiladi, G. M. Knudsen, K. F. Medzihradszky, and P. R. Ortiz de Montellano. "The Met-Tyr-Trp cross-link in Mycobacterium tuberculosis Catalase-Peroxidase (KatG): Autocatalytic Formation and Effect on Enzyme Catalysis and Spectroscopic Properties" *J. Biol. Chem.* **2005**, *280*, 22651-63.
9. R. A. Ghiladi, H.-w. Huang, P. Moënne-Loccoz, J. Stasser, N. J. Blackburn, A. S. Woods, R. J. Cotter, C. D. Incarvito, A. L. Rheingold and K. D. Karlin. "Heme-copper/dioxygen Adduct Formation Relevant to Cytochrome *c* Oxidase: Spectroscopic Characterization of [(^{6}L)Fe^{III}-(O_2^{2-})-Cu^{II}]$^{+}$" *J. Biol. Inorg. Chem.* **2005**, *10*, 63-77.
10. R. A. Ghiladi, D. E. Cabelli, P. R. Ortiz de Montellano. "Superoxide Reactivity of KatG: Insights into Isoniazid Resistance Pathways in TB" *J. Am. Chem. Soc.* **2004**, *126*, 4722-4723.
11. D. W. Thompson, R. M. Kretzer, E. L. Lebeau, D. V. Scaltrio, R. A. Ghiladi, K.-C. Lam, A. L. Rheingold, K. D. Karlin and G. J. Meyer. "Synthesis, Characterization, and Laser Flash Photolysis Reactivity of a Reduced Carbonmonoxy Heme Complex" *Inorg. Chem*. **2003**, *42*, 5211-5218.
12. R. M. Kretzer, R. A. Ghiladi, E. L. Lebeau, H.-C. Liang, and K. D. Karlin. "Synthesis and Characterization of Reduced Heme and Heme/Copper Carbonmonoxy Species" *Inorg. Chem*. **2003**, *42*, 3016-3025.
13. R. A. Ghiladi and K. D. Karlin. "Low-Temperature UV-Visible and NMR Spectroscopic Investigations of O_2 Binding to (^{6}L)Fe^{II}, a Ferrous Heme Bearing Covalently Tethered Axial Pyridine Ligands" *Inorg. Chem*. **2002**, *41*, 2400-2407
14. R. A. Ghiladi, R. M. Kretzer, I. Guzei, A. L. Rheingold, Y.-M. Neuhold, K. R. Hatwell, A. D. Zuberbühler, and K. D. Karlin. "(F_8TPP)Fe^{II}/O_2 Reactivity Studies {F_8TPP = Tetrakis(2,6-difluorophenyl)porphyrinate(2-)}: Spectroscopic (UV-Visible and NMR) and Kinetic Study of Solvent-Dependent (Fe/O_2 = 1:1 or 2:1) Reversible O_2-Reduction and Ferryl Formation" *Inorg. Chem*. **2001**, *40*, 5754-5767.
15. R. A. Ghiladi, K. R. Hatwell, K. D. Karlin, H.-w. Huang, P. Moënne-Loccoz, C. Krebs, B. H. Huynh, L. Marzilli, R. J. Cotter, S. Kaderli, and A. D. Zuberbühler. "Dioxygen Reactivity of Mononuclear Heme and Copper Components Yielding A High-Spin Heme-Peroxo-Cu Complex" *J. Am. Chem. Soc.* **2001**, *123*, 6183-6184.
16. P. Moënne-Loccoz, O. M. H. Richter, H.-w. Huang, I. M. Wasser, R. A. Ghiladi, and K. D. Karlin. "Nitric Oxide Reductase from Paracoccus Denitrificans Contains an Oxo-Bridged Heme/Non-Heme Diiron Center" *J. Am. Chem. Soc.* **2000**, *122*, 9344-9345.
17. R. A. Ghiladi, T. D. Ju, D.-H. Lee, P. Moënne-Loccoz, S. Kaderli, Y.-M. Neuhold, A. D. Zuberbühler, A. S. Woods, R. J. Cotter, and K. D. Karlin. "Formation and Characterization of a High-Spin Heme-Copper (Peroxo) Complex" *J. Am. Chem. Soc.* **1999**, *121*, 9885-9886.
18. T. D. Ju, R. A. Ghiladi, D.-H. Lee, G. P. F. van Strijdonck, A. S. Woods, R. J. Cotter, V. G. Young Jr., and K. D. Karlin. "Dioxygen Reactivity of Fully Reduced [LFe^{II}…Cu^{I}]$^{+}$

Complexes Utilizing Tethered Tetraarylporphyrins: Active Site Models for Heme-Copper Oxidases" *Inorg. Chem*. **1999**, *38*, 2244-2245.

Professional Memberships
American Chemical Society
Biophysical Society
Society of Biological Inorganic Chemistry
Society of Porphyrins and Phthalocyanines
Sigma Xi, Honorable Scientific Research Society

Synergistic Activities
Director of Undergraduate Research (Chemistry Department)
Co-PI NSF REU Site at the Department of Chemistry, NC State University
“Creating S.T.A.R.S.!” K-2 and Middle School Outreach Program
NC Project SEED High School Mentor