

AMY C. ROSENZWEIG

Departments of Molecular Biosciences & Chemistry
Northwestern University
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EDUCATION

Amherst College, B. A. in Chemistry, *Summa Cum Laude*, 1988
Massachusetts Institute of Technology, Ph. D. in Inorganic Chemistry, 1994

PROFESSIONAL APPOINTMENTS

Weinberg Family Distinguished Professor of Life Sciences, Northwestern University, 2012-present
Professor, Departments of Molecular Biosciences and of Chemistry, Northwestern University, 2005-present
Irving M. Klotz Research Professor, Northwestern University, 2004-2006
Associate Professor, Departments of Biochemistry, Molecular Biology, and Cell Biology and of Chemistry,
Northwestern University, 2002-2005
Assistant Professor, Departments of Biochemistry, Molecular Biology, and Cell Biology and of Chemistry,
Northwestern University, 1997–2002
Harvard Medical School and Dana Farber Cancer Institute, NIH Postdoctoral Fellowship, 1994–1997

RESEARCH INTERESTS

Structural biology and bioinorganic chemistry, metal uptake and transport, oxygen activation by metalloenzymes, membrane proteins

HONORS AND AWARDS

The Protein Society Hans Neurath Award, 2021
American Chemical Society Alfred Bader Award in Bioinorganic or Bioorganic Chemistry, 2021
Elected Member, National Academy of Sciences, 2017
Elected Fellow, American Academy of Arts and Sciences, 2014
Royal Society of Chemistry Joseph Chatt Award, 2014
Ivano Bertini Award, 2014
Fletcher Undergraduate Research Faculty Award, 2014
Elected Fellow, American Association for the Advancement of Science, 2007
American Chemical Society Nobel Laureate Signature Award for Graduate Education, 2006
Honorary Degree, Doctor of Science, Amherst College, 2005
MacArthur Fellow, 2003
Camille Dreyfus Teacher Scholar Award, 2001
David and Lucile Packard Fellow, 1999
National Institutes of Health Postdoctoral Fellowship, 1994-1997
General Electric Predoctoral Fellowship, 1988-1989
Howard Waters Doughty Prize for best thesis in Chemistry, 1988
White Prize for excellence in Chemistry, 1987

PROFESSIONAL ACTIVITIES

Advisory boards and committees

Review Committee for the PhD Programs in Biomedical and Biological Sciences, University of Southern California, 2023
Searle Scholars Program Advisory Board, 2020-2025, Chair 2023-2025
Member, National Advisory General Medical Sciences Council (NIGMS Council), NIH, 2020-2024

Editorial Board, *Proc. Natl. Acad. Sci. USA*, 2019-present
 Editorial Advisory Board of *Accounts of Chemical Research*, 2018-present
 Board of Reviewing Editors, *Science*, 2015-present
 Member, Stanford Synchrotron Radiation Light Source Structural Molecular Biology Advisory Committee (SMBAC), 2014-present
 National Academy of Sciences Award Selection Committee, 2021-2022
 American Chemical Society National Award Selection Committee, 2019-2022
 Editorial Advisory Board of *Biochemistry*, 2017-2020
 Elected Member, ASBMB Nominating Committee, 2015-2018
 Scientific Advisory Board of the Cluster of Excellence "Unifying Concepts in Catalysis, UniCAT," Berlin, Germany, 2013-2017
 Elected Councilor, Society for Biological Inorganic Chemistry, 2013-2017
 Co-editor, Catalysis and Regulation section of *Current Opinion in Structural Biology*, December 2015 issue
 Editorial Advisory Board of the *Journal of Inorganic Biochemistry*, 2010-2014
 Editorial Advisory Board of the *Journal of Biological Inorganic Chemistry*, 2009-2011
 Editorial Advisory Board of *Inorganic Chemistry*, 2009-2012
 Co-editor, *Methods in Enzymology* volumes 494 and 495, *Methods in Methane Metabolism*, 2011
 Elected Chair, Bioinorganic Subdivision, American Chemical Society, 2009
 Co-Editor, Bioinorganic Chemistry section of *Current Opinion in Chemical Biology*, April 2006 issue
 Elected Councilor, Division of Biological Chemistry, American Chemical Society, 2005-2008
 Editorial Advisory Board of the *Journal of Biological Inorganic Chemistry*, 2004-2006
 Elected member, Advanced Photon Source Users Organization Steering Committee (APSUO), 2000-2003

Conference leadership

Co-organizer, Metals in Biological Chemistry: C-H Bond Activation by Metalloenzymes and Models Symposium, Pacificchem 2025, December 15-20, 2025
 Co-chair, 12th International Copper Meeting (Copper 2020 Sorrento), September 18-23, 2022
 Co-organizer, Metals in Biological Chemistry: C-H Bond Activation by Metalloenzymes and Models Symposium, Pacificchem 2020, December 16-21, 2021
 Co-organizer, Dioxygen Activation Chemistry of Metalloenzymes and Models Symposium, Pacificchem 2015, December 15-20, 2015
 Chair, Metals in Biology Gordon Research Conference, 2013
 Vice Chair, Metals in Biology Gordon Research Conference, 2012
 Scientific Organizing Committee for the 8th International Copper Meeting, Alghero, Sardinia, September 30-October 5, 2012
 Co-organizer, Dioxygen Activation Chemistry and Catalytic Oxidation Reactions Symposium, Pacificchem 2010, December 15-20, 2010
 Scientific Organizing Committee for the 6th International Copper Meeting, Alghero, Sardinia, October 11-15, 2008
 Scientific Organizing Committee for the 4th International Meeting on Copper Homeostasis and its Disorders: Molecular and Cellular Aspects, Ischia, Italy, October 22-28, 2004
 Co-organizer, Bader Award Symposium, 227th National Meeting of the American Chemical Society, Anaheim, CA, March 28 – April 1, 2004
 Local chair, Midwest Enzyme Chemistry Conference, 2002
 Co-organizer, Biological Crystallography Workshop, 2001 APS Users Meeting

Peer review

Member, DOE BES Enzyme Structure and Function Review Panel, March 2021
 Ad hoc reviewer for R35 Special Emphasis Panel, November 2019
 Member, DOE BES Enzyme Structure and Function Review Panel, March 2018
 Member, Proposal Review Panel, Stanford Synchrotron Radiation Light Source, 2010-2015

- Ad hoc reviewer for MSFA Study Section, Center for Scientific Review, National Institutes of Health, February 2015
- Ad hoc reviewer for MBBP Study Section, Center for Scientific Review, National Institutes of Health, October 2013
- Member, NSF CLP Review Panel, March 2013
- Member, Special Emphasis Panel, Center for Scientific Review, National Institutes of Health, May 2012
- Ad hoc reviewer, Program Project Special Emphasis Panel, Center for Scientific Review, National Institutes of Health, November 2011
- Member, MFSA Study Section, Center for Scientific Review, National Institutes of Health, 2006-2010
- Ad hoc reviewer for Roadmap Initiative for Membrane Proteins, Center for Scientific Review, National Institutes of Health, June 2005
- Ad hoc reviewer for the Metallobiochemistry Study Section, Center for Scientific Review, National Institutes of Health, February 2004, October 2004, February 2006
- Ad hoc reviewer for the Nutritional Chemistry Study Section, Center for Scientific Review, National Institutes of Health, October 2003
- Grant proposal review for the National Science Foundation, Department of Energy, Department of Agriculture, American Chemical Society Petroleum Research Fund, Research Corporation, Biotechnology and Biological Sciences Research Council (BBSRC, UK), German Research Foundation (DFG), Marsden Fund (Royal Society of New Zealand), Alberta Heritage Foundation for Medical Research (Canada), Nebraska EPSCoR, Swedish Research Council
- Macromolecular crystallography proposal review panel (MC PRP) at the Advanced Photon Source, 2003-2005
- Manuscript review for *Science*, *Nature*, *Nat. Chem.*, *Nat. Chem. Biol.*, *Structure*, *Proc. Natl. Acad. Sci. USA*, *J. Am. Chem. Soc.*, *Biochemistry*, *Nat. Struct. Molec. Biol.*, *Cell*, *eLife*, *J. Biol. Inorg. Chem.*, *Inorg. Chem.*, *Structure*, *J. Mol. Biol.*, *J. Biol. Chem.*, *Acc. Chem. Res.*, *J. Bacteriol.*, *Metallomics*, *FEBS Lett.*, *FEMS Microbiol. Rev.*, *FEMS Microbiol. Lett.*, *Eur. J. Inorg. Chem.*, *Molecular Cell*, *EMBO J.*, *Environ. Microbiol.*, *PLoS ONE*, *Biochem. Biophys. Acta*, *Biochem. J.*, *J. Inorg. Biochem.*, *TIBS*, *Proteins*, *Nat. Prod. Rep.*, *Trends Microbiol.*, *Dalton Trans.*, *PloS One*, *Biochimie*, *Frontiers Microbiol.*, *Sci. Rep.*, *Essays Biochem.*, *Sci. Adv.*, *ChemBioChem*, *Microb. Biotechnol.*, *ACS Cent. Sci.*, *ACS Catal.*, *Mol. Catal.*, *J. Mol. Graph.*

Society membership

- American Chemical Society
 Society of Biological Inorganic Chemistry
 American Association for the Advancement of Science
 American Society for Biochemistry and Molecular Biology
 American Academy of Arts and Sciences
 National Academy of Sciences

PUBLICATIONS (GOOGLE SCHOLAR H-INDEX 70)

165. Tucci, F. J.; Jodts, R. J.; Hoffman, B. M.; Rosenzweig, A. C. Product analog binding identifies the active site of particulate methane monooxygenase, *Nat. Catal.*, in revision.
164. Manesis, A. C.; Slater, J. W.; Cantave, K.; Bollinger, Jr., J. M.; Krebs, C.; Rosenzweig, A. C. Capturing a *bis*-Fe(IV) state in *Methylosinus trichosporium* OB3b MbnH, *Biochemistry* **2023**, *62*, 1082.
163. Koo, C. W.; Hershewe, J. M.; Jewett, M. C.; Rosenzweig, A. C. Cell-free protein synthesis of particulate methane monooxygenase into nanodiscs. *ACS Synth. Biol.* **2022**, *11*, 4009.
162. Zhu, Y.; Koo, C. W.; Cassidy, C. K.; Spink, M. C.; Ni, T.; Zanetti-Domingues, L. C.; Bateman, B.; Martin-Fernandez, M. L.; Shen, J.; Sheng, Y.; Song, Y.; Yang, Z.; Rosenzweig, A. C.; Zhang, P.

- Structure and activity of particulate methane monooxygenase arrays in methanotrophs. *Nat. Commun.* **2022**, *13*, 5221.
161. Schachner, L. F.; Des Soye, B.; Ro, S. Kenney, G. E.; Ives, A. N.; Su, T.; Goo, Y. A.; Jewett, M. C.; Rosenzweig, A. C.; Kelleher, N. L. Revving an engine of human metabolism: activity enhancement of triosephosphate isomerase via hemi-phosphorylation. *ACS Chem. Biol.* **2022**, *10*, 2769-2790.
160. Koo, C. W.; Tucci, F. J.; He, Y.; Rosenzweig, A. C. Recovery of particulate methane monooxygenase structure and activity in a lipid bilayer. *Science* **2022**, *375*, 1287-1291.
159. Park, Y. J.; Jodts, R. J.; Slater, J. W.; Reyes, R. M.; Winton, V. J.; Montaser, R. A.; Thomas, P. M.; Dowdle, W. B.; Ruiz, A.; Kelleher, N. L.; Bollinger, J. M., Jr.; Krebs, C.; Hoffman, B. M. Rosenzweig, A. C. A mixed valent Fe(II)Fe(III) species converts cysteine to an oxazolone/thioamide pair in methanobactin biosynthesis. *Proc. Natl. Acad. Sci. USA* **2022**, *119*, e2123566119.
158. Hadley, R. C.; Zhitnitsky, D.; Livnat-Levanon, N.; Masrati, G.; Vigonsky, E.; Rose, J.; Ben-Tal, N.; Rosenzweig, A. C.; Lewinson, O. The copper-linked *Escherichia coli* AZY operon: Structure, metal binding, and a possible physiological role in copper delivery. *J. Biol. Chem.* **2022**, *298*, 101445.
157. Park, Y. J.; Roberts, G. M.; Montaser, R.; Kenney, G. E.; Thomas, P. M.; Kelleher, N. L.; Rosenzweig, A. C. Characterization of a copper-chelating natural product from the methanotroph *Methylosinus* sp. LW3. *Biochemistry* **2021**, *60*, 2845-2850.
156. Jodts, R. J.; Ross, M. O.; Koo, C. W.; Doan, P. E.; Rosenzweig, A. C.; Hoffman, B. M. Coordination of the copper centers in particulate methane monooxygenase: comparison between methanotrophs and characterization of the Cu_C site by EPR and ENDOR spectroscopies. *J. Am. Chem. Soc.* **2021**, *143*, 15358-15368.
155. Manesis, A. C.; Jodts, R. J.; Hoffman, B. M.; Rosenzweig, A. C. Copper binding by a unique family of metalloproteins is dependent on kynurenine formation. *Proc. Natl. Acad. Sci. USA* **2021**, *118*, e2100680118.
154. Cutsail, G. E., III; Ross, M. O.; Rosenzweig, A. C.; DeBeer, S. Towards a unified understanding of the copper sites in particulate methane monooxygenase: an X-ray absorption spectroscopic investigation. *Chem. Sci.* **2021**, *17*, 6194-6209.
153. Koo, C. W.; Rosenzweig, A. C. Biochemistry of aerobic biological methane oxidation. *Chem Soc. Rev.* **2021**, *50*, 3424-3436.
152. Koo, C. W.; Rosenzweig, A. C. Particulate methane monooxygenase and the PmoD protein. *Encyclopedia of Inorganic and Bioinorganic Chemistry* (A. Messerschmidt, ed.), **2020**, DOI: 10.1002/9781119951438.eibc2740.
151. Fisher, O. S.; Sendzik, M. R.; Ross, M. O.; Lawton, T. J.; Hoffman, B. M.; Rosenzweig, A. C. PCu_AC domains from methane-oxidizing bacteria use a histidine brace to bind copper. *J. Biol. Chem.* **2019**, *294*, 16351-16363.
150. Kenney, G. E.; Dassama, L. M. K.; Manesis, A. C.; Ross, M. O.; Chen, S.; Hoffman, B. M.; Rosenzweig, A. C. MbnH is a diheme MauG-like protein associated with microbial copper homeostasis. *J. Biol. Chem.* **2019**, *294*, 16141-16151.
149. Ro, S. Y.; Schachner, L. F.; Koo, C. W.; Purohit, R.; Remis, J. P.; Kenney, G. E.; Liauw, B. W.; Thomas, P. M.; Patrie, S. M.; Kelleher, N. L.; Rosenzweig, A. C. Native top-down mass spectrometry provides insights into the copper centers of membrane-bound methane monooxygenase. *Nat. Commun.* **2019**, *10*, 2675.
148. Ross, M. O.; MacMillan, F.; Wang, J.; Nisthal, A.; Lawton, T. J.; Olafson, B. D.; Mayo, S. L.; Rosenzweig, A. C.; Hoffman, B. M. Particulate methane monooxygenase contains only monocopper centers. *Science* **2019**, *364*, 566-570.
147. Ross, M. O.; Fisher, O. S.; Morgada, M. N.; Krzyaniak, M. D.; Wasielewski, M. R.; Vila, A. J.; Hoffman, B. M.; Rosenzweig, A. C. Formation and electronic structure of an atypical Cu_A site. *J. Am. Chem. Soc.* **2019**, *141*, 4678-4686.
146. Fisher, O. S.; Kenney, G. E.; Ross, M. O.; Ro, S. Y.; Lemma, B. E.; Batelu, S.; Thomas, P. M.; Sosnowski, V. C.; DeHart, C. J.; Kelleher, N. L.; Stemmler, T. L.; Hoffman, B. M.; Rosenzweig, A. C. Characterization of a long overlooked copper protein from methane- and ammonia-oxidizing bacteria. *Nat. Commun.* **2018**, *9*, 4276.
145. Deng, Y. W.; Ro, S. Y.; Rosenzweig, A. C. Structure and function of the lanthanide-dependent

- methanol dehydrogenase XoxF from the methanotroph *Methylobacterium buryatense* 5GB1C. *J. Biol. Inorg. Chem.* **2018**, *7*, 1037.
144. Ro, S. Y.; Ross, M. O.; Deng, Y. W.; Batelu, S.; Lawton, T. J.; Hurley, J. D.; Stemmler, T. L.; Hoffman, B. M.; Rosenzweig, A. C. From micelles to bicelles: effect of the membrane on particulate methane monooxygenase activity. *J. Biol. Chem.* **2018**, *293*, 10457-10465.
 143. Park, Y. J.; Kenney, G. E.; Schachner, L. F.; Kelleher, N. L.; Rosenzweig, A. C. Repurposed HisC aminotransferases complete the biosynthesis of some methanobactins. *Biochemistry* **2018**, *57*, 3515-3523.
 142. Kenney, G. E.; Dassama, L. M. K.; Pandelia, M.-E.; Gizzi, A. S.; Martinie, R. J.; Gao, P.; DeHart, C. J.; Schachner, L. F.; Skinner, O. S.; Ro, S. Y.; Zhu, X.; Sadek, M.; Thomas, P. M.; Almo, S. C.; Bollinger, J. M., Jr.; Krebs, C.; Kelleher, N. L.; Rosenzweig, A. C. The biosynthesis of methanobactin. *Science* **2018**, *359*, 1411-1416.
 141. Ro, S. Y.; Rosenzweig, A. C. Recent advances in the genetic manipulation of *Methylosinus trichosporium* OB3b. *Methods Enzymol.* **2018**, *605*, 335-349.
 140. Kenney, G. E.; Rosenzweig, A. C. Chalkophores. *Annu. Rev. Biochem.* **2018**, *87*, 645-676.
 139. Purohit, R.; Ross, M. O.; Batelu, S.; Kusowski, A.; Stemmler, T. L.; Hoffman, B. M.; Rosenzweig, A. C. A Cu⁺-specific CopB transporter: revising P_{1B}-type ATPase classification. *Proc. Natl. Acad. Sci. USA* **2018**, *115*, 2108-2113.
 138. Kenney, G. E.; Rosenzweig, A. C. Methanobactins: maintaining copper homeostasis in methanotrophs and beyond. *J. Biol. Chem.* **2018**, *293*, 4606-4615.
 137. Cao, L.; Caldararu, O.; Rosenzweig, A. C.; Ryde, U. Quantum refinement does not support dinuclear copper sites in the crystal structures of particulate methane monooxygenase. *Angew. Chem. Int. Ed.* **2018**, *57*, 162-166.
 136. Rosenzweig, A. C. A biochemical sulfur delivery service. *Science* **2017**, *358*, 307-308
 135. Ross, M. O.; Rosenzweig, A. C. A tale of two methane monooxygenases. *J. Biol. Inorg. Chem.* **2017**, *22*, 307-319.
 134. Dassama, L. M. K.; Kenney, G. E.; Rosenzweig, A. C. Methanobactins: from genome to function. *Metallomics* **2017**, *9*, 7-20.
 133. Smith, A. T.; Ross, M. O.; Hoffman, B. M.; Rosenzweig, A. C. Metal selectivity of a Cd-, Co-, and Zn-transporting P_{1B}-type ATPase. *Biochemistry* **2016**, *56*, 85-95.
 132. Dassama, L. M. K.; Kenney, G. E.; Ro, S. Y.; Zielazinski, E. L.; Rosenzweig, A. C. Methanobactin transport machinery. *Proc. Natl. Acad. Sci. USA* **2016**, *113*, 13027-13032.
 131. Lawton, T. J.; Rosenzweig, A. C. Biocatalysts for methane conversion: big progress on breaking a small substrate. *Curr. Op. Chem. Biol.* **2016**, *35*, 142-149.
 130. Trana, E. N.; Nocek, J. M.; Vander Woude, J.; Span, I.; Smith, S. M.; Rosenzweig, A. C.; Hoffman, B. M. Charge-disproportionation symmetry breaking creates a heterodimeric myoglobin complex with enhanced affinity and rapid intracomplex electron transfer. *J. Am. Chem. Soc.* **2016**, *138*, 12615-12628.
 129. Kenney, G. E.; Goering, A. W.; Ross, M. O.; DeHart, C. J.; Thomas, P. M.; Hoffman, B. M.; Kelleher, N. L.; Rosenzweig, A. C. Characterization of methanobactin from *Methylosinus* sp. LW4. *J. Am. Chem. Soc.* **2016**, *138*, 11124-11127.
 128. Lawton, T. J.; Rosenzweig, A. C.; Methane-oxidizing enzymes: an upstream problem in biological gas-to-liquids conversion. *J. Am. Chem. Soc.* **2016**, *138*, 9327-9340.
 127. Blanchette, C. D.; Knipe, J. M.; Stolaroff, J. K.; DeOtte, J. R.; Oakdale, J. S.; Maiti, A.; Lenhardt, J. M.; Sirajuddin, S.; Rosenzweig, A. C.; Baker, S. E. Printable enzyme-embedded materials for methane to methanol conversion. *Nat. Commun.* **2016**, *7*, 11900.
 126. Lawton, T. J.; Rosenzweig, A. C. Methane – make it or break it. *Science* **2016**, *352*, 892-893.
 125. Kenney, G. E.; Sadek, M.; Rosenzweig, A. C. Copper-responsive gene expression in the methanotroph *Methylosinus trichosporium* OB3b. *Metallomics* **2016**, *8*, 931-940.
 124. Lawton, T. J.; Kenney, G. E.; Hurley, J. D.; Rosenzweig, A. C. The CopC family: structural and bioinformatic insights into a diverse group of periplasmic copper binding proteins. *Biochemistry* **2016**, *55*, 2278-2290.

123. Li, J.; Lawton, T. J.; KostECKI, J. S.; Nisthal, A.; Fang, J.; Mayo, S. L.; Rosenzweig, A. C.; Jewett, M. C. Cell-free protein synthesis enables high yielding synthesis of an active multicopper oxidase. *Biotechnol. J.* **2016**, *11*, 212-218.
122. Klinman, J. P.; Rosenzweig, A. C. Editorial overview: catalysis and regulation. *Curr. Op. Struct. Biol.* **2015**, *35*, IV-VI.
121. Kathman, S. G.; Span, I.; Smith, A. T.; Xu, Z.; Zhan, J.; Rosenzweig, A. C.; Statsyuk, A. V. A small molecule that switches a ubiquitin ligase from a processive to a distributive enzymatic mechanism. *J. Am. Chem. Soc.* **2015**, *137*, 12442-12445.
120. Boal, A. K.; Rosenzweig, A. C. Response from Boal and Rosenzweig to Crystallography and chemistry should always go together: a cautionary tale of protein complexes with cisplatin and carboplatin. *Acta Cryst.* **2015**, *D71*, 1984-1986.
119. Smith, A. T.; Barupala, D.; Stemmler, T. L.; Rosenzweig, A. C. A new metal binding domain involved in cadmium, cobalt, and zinc transport. *Nat. Chem. Biol.* **2015**, *11*, 678-684.
118. Sirajuddin, S.; Rosenzweig, A. C. Enzymatic oxidation of methane. *Biochemistry* **2015**, *54*, 2283-2294.
117. Rosenzweig, A. C. Breaking methane. *Nature* **2015**, *518*, 309-310.
116. Culpepper, M. A.; Rosenzweig, A. C. Structure and protein-protein interactions of methanol dehydrogenase from *Methylococcus capsulatus* (Bath). *Biochemistry* **2014**, *53*, 6211-6219.
115. Sirajuddin, S.; Rosenzweig, A. C. Protocols for structural and functional analysis of particulate methane monooxygenase from *Methylocystis* species strain Rockwell (ATCC 49242). *Hydrocarbon and Lipid Microbiology Protocols* (T. J. McGenity et al, eds.) **2014**, Berlin: Springer-Verlag, 10.1007/8623_2014_22.
114. Culpepper, M. A.; Cutsail, G. E., III; Gunderson, W. A.; Hoffman, B. M.; Rosenzweig, A. C. Identification of the valence and coordination environment of the particulate methane monooxygenase copper centers by advanced EPR characterization. *J. Am. Chem. Soc.* **2014**, *136*, 11767-11775.
113. Sirajuddin, S.; Barupala, D.; Helling, S.; Marcus, K.; Stemmler, T. L.; Rosenzweig, A. C. Effects of zinc on particulate methane monooxygenase activity and structure. *J. Biol. Chem.* **2014**, *289*, 21782-21794.
112. Silakov, A.; Grove, T. L.; Radle, M. I.; Bauerle, M. R.; Green, M. T.; Rosenzweig, A. C.; Boal, A. K.; Booker, S. J. Characterization of a cross-linked protein-nucleic acid substrate radical in the reaction catalyzed by RlmN. *J. Am. Chem. Soc.* **2014**, *136*, 8221-8228.
111. Smith, A. T.; Smith, K. P.; Rosenzweig, A. C. Diversity of the metal-transporting P_{1B}-type ATPases. *J. Biol. Inorg. Chem.* **2014**, *6*, 947-960.
110. Austin, R. N.; Kenney, G. E.; Rosenzweig, A. C. Perspective: what is known, and not known, about the connections between alkane oxidation and metal uptake in alkanotrophs in the marine environment. *Metallomics* **2014**, *6*, 1121-1125.
109. Lawton, T. J.; Ham, J.; Sun, T.; Rosenzweig, A. C. Structural conservation of the B subunit in the ammonia monooxygenase/ particulate methane monooxygenase superfamily. *Proteins* **2014**, *82*, 2263-2267.
108. Chang, W.-C.; Guo, Y.; Wang, C.; Butch, S. E.; Rosenzweig, A. C.; Boal, A. K.; Krebs, C.; Bollinger, J. M., Jr. Mechanism of the C5 stereoinversion reaction in the biosynthesis of carbapenam antibiotics. *Science* **2014**, *343*, 1140-1144.
107. Makhlynets, O.; Boal, A. K.; DeLacy, V. R.; Kitten, T.; Rosenzweig, A. C.; Stubbe, J. *Streptococcus sanguinis* class Ib ribonucleotide reductase: high activity with both iron and manganese cofactors and structural insights. *Biochemistry* **2014**, *289*, 6259-6272.
106. Zielazinski, E. L.; González-Guerrero, M.; Subramanian, P.; Stemmler, T. L.; Argüello, J. M.; Rosenzweig, A. C. *Sinorhizobium meliloti* Nia is a P_{1B-5}-ATPase expressed in the nodule during plant symbiosis and is involved in Ni and Fe transport. *Metallomics* **2013**, *5*, 1614-1623.
105. Dassama, L. M. K.; Krebs, C.; Bollinger, Jr., J. M.; Rosenzweig, A. C.; Boal, A. K. Structural basis for assembly of the Mn/Fe cofactor in the class Ic ribonucleotide reductase from *Chlamydia trachomatis*. *Biochemistry* **2013**, *52*, 6424-6436.
104. Lawton, T. J.; Bowen, K. E.; Sayavedra-Soto, L. A.; Arp, D. J.; Rosenzweig, A. C. Characterization

- of a nitrite reductase involved in nitrifier denitrification. *J. Biol. Chem.* **2013**, *288*, 25575-25583.
103. Rosenzweig, A. C. Put a ring on it. *Nat. Chem. Biol.* **2013**, *9*, 220-221.
 102. Kenney, G. E.; Rosenzweig, A. C. Genome mining for methanobactins. *BMC Biol.* **2013**, *11*, 17.
 101. Smith, S. M.; Rosenzweig, A. C. Particulate methane monooxygenase. In *Encyclopedia of Metalloproteins* (V.N. Uversky, R.H. Kretsinger, E.A. Permyakov, eds.), **2013**, Springer, Heidelberg, Germany, 1663-1669.
 100. Boal, A. K.; Rosenzweig, A. C. A radical route for nitrogenase carbide insertion. *Science* **2012**, *337*, 1617-1618.
 99. Zielazinski, E. L.; Cutsail, G. E., III; Hoffman, B. M.; Stemmler, T. L.; Rosenzweig, A. C. Characterization of a cobalt-specific P_{1B}-ATPase, *Biochemistry*, **2012**, *51*, 7891-7900.
 98. Rosenzweig, A. C.; Argüello, J. M. Toward a molecular understanding of metal transport by P_{1B}-type ATPases. *Curr. Top. Membr.* **2012**, *69*, 113-136.
 97. Culpepper, M. A.; Rosenzweig, A. C. Architecture and active site of particulate methane monooxygenase. *Crit. Rev. Biochem. Mol. Biol.* **2012**, *47*, 483-492.
 96. Culpepper, M. A.; Cutsail, G. E., III; Hoffman, B. M.; Rosenzweig, A. C. Evidence for oxygen binding at the active site of particulate methane monooxygenase. *J. Am. Chem. Soc.* **2012**, *134*, 7640-7643.
 95. Boal, A. K.; Cotruvo, J. A., Jr.; Stubbe, J.; Rosenzweig, A. C. The dimanganese(II) site of *Bacillus subtilis* class Ib ribonucleotide reductase. *Biochemistry* **2012**, *51*, 3861-3871.
 94. Dassama, L. M. K.; Boal, A. K.; Krebs, C.; Rosenzweig, A. C.; Bollinger, J. M., Jr. Evidence that the β subunit of *Chlamydia trachomatis* ribonucleotide reductase is active with the manganese ion of its manganese(IV)/iron(III) cofactor in site 1. *J. Am. Chem. Soc.* **2012**, *134*, 2520-2523.
 93. Kenney, G. E.; Rosenzweig, A. C. Chemistry and biology of the copper chelator methanobactin. *ACS Chem. Biol.* **2012**, *7*, 260-268.
 92. Smith, S. M.; Rawat, S.; Telser, J.; Hoffman, B. M.; Stemmler, T. L.; Rosenzweig, A. C. Crystal structure and characterization of particulate methane monooxygenase from *Methylocystis* species strain M. *Biochemistry* **2011**, *50*, 10231-10240.
 91. Balasubramanian, R.; Kenney, G. E.; Rosenzweig, A. C. Dual pathways for copper uptake by methanotrophic bacteria. *J. Biol. Chem.* **2011**, *286*, 37313-37319.
 90. Lawton, T. J.; Rosenzweig, A. C. Detection and characterization of a multicopper oxidase from *Nitrosomonas europaea*. *Methods Enzymol.* **2011**, *496*, 423-433.
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2. Dooley, D. M.; McGuirl, M. A.; Rosenzweig, A. C.; Landin, J. A.; Scott, R. A.; Zumft, W. G.; Devlin, F.; Stephens, P. J. Spectroscopic studies of the copper sites in wild-type *Pseudomonas stutzeri*

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INVITED PRESENTATIONS

Conferences

- 13th International Copper Meeting (Copper 2024 Sorrento), September 15-20, 2024
 4th International Conference on Hydrogen Atom Transfer, June 9-13, 2024, Rome, Italy
 Gas Fermentation Conference, February 21-24, 2024, Heron Island, Queensland, Australia
 Metals in Biology Gordon Research Conference, Ventura, CA, January 21-26, 2024
 Metals in Structural Biology Workshop, SSRL/LCLS Users Meeting, Stanford, CA, September 29, 2023
 Keynote Address, 13th Annual Southeast Enzyme Conference (SEC), Atlanta, GA, April 22, 2023
 Annual Institute for Sustainability and Energy (ISEN) Symposium, Northwestern University, December 1-2, 2022
 Molecular Basis for Microbial One-Carbon Metabolism Gordon Research Conference, Southbridge, MA, August 7-12, 2022
 Metallocofactors Gordon Research Conference, Newport, RI, June 5-10, 2022
 Plenary Lecture, 19th International Symposium on Relations between Homogeneous and Heterogeneous Catalysis (ISHHC19), Oslo, Norway, June 26-29, 2022
 Bollum Symposium on Metals in Biology in honor of John Lipscomb, Department of Biochemistry, Molecular Biology, and Biophysics, University of Minnesota, May 4, 2022
 American Chemical Society William H. Nichols Distinguished Symposium honoring Alison Butler, White Plains, NY, April 8, 2022
 Dioxygen Activation Chemistry of Metalloenzymes and Models Symposium, Pacificchem 2021, Honolulu, HI, December 16-21, 2021
 Cell Biology of Metals Gordon Research Conference, West Dover, VT, October 17-21, 2021
 Hans Neurath Award Lecture, Protein Society Meeting, July 9, 2021
 Bader Award Lecture, American Chemical Society Spring 2021 Meeting, April 9, 2021
 45th Lorne Conference on Protein Structure and Function, Cumberland, Lorne, Australia, February 9-13, 2020
 Research and Education on Chemistry in the US: State of the Art and Future Perspectives, University of Málaga, Málaga, Spain, January 13-17, 2020
 Keynote Lecture, 19th International Conference on Biological Inorganic Chemistry (ICBIC19), Interlaken, Switzerland, August 11-16, 2019
 American Society for Microbiology (ASM Microbe) 2019, San Francisco, CA, Jun 20-24, 2019
 Metals in Biology Gordon Research Conference, Ventura, CA, January 27-February 1, 2019
 26th Enzyme Mechanisms Conference, New Orleans, LA, January 6-9, 2019
 1987 Plenary Lecture, AsCA2018/Crystal 32, Auckland, New Zealand, December 2-5, 2018
 Plenary Lecture, 11th International Copper Meeting, Sorrento, Italy, September 23-28, 2018
 Plenary Lecture, 14th European Biological Inorganic Chemistry Conference EuroBIC-14, Birmingham, UK, August 26-30, 2018
 Plenary Lecture, Frontiers in Metallobiochemistry Summer Symposium in Molecular Biology, The Pennsylvania State University, University Park, PA, June 5-8, 2018
 Keynote Lecture, Copper Bioinorganic Chemistry Symposium (CuBICS 2018), Marseille, France, May 21-24, 2018
 Symposium on Nitrogen Un-fixation: Mechanisms and Models in Nitrification and Denitrification American Chemistry Society Spring 2018 Meeting, New Orleans, LA, March 18-22, 2018
 Bader Award Symposium in honor of Alison Butler, American Chemistry Society Spring 2018 Meeting, New Orleans, LA, March 18-22, 2018

Symposium on the Many Colors of Copper, American Chemical Society Fall 2017 Meeting, Washington, D. C., August 20-24, 2017

Keynote Lecture, 18th International Conference on Biological Inorganic Chemistry, Florianópolis, Brazil, July 31-August 4, 2017

Department of Energy Basic Research Needs Workshop on Catalysis Science to Transform Energy Technologies, Gaithersburg, MD, May 7-10, 2017

Metal Homeostasis Symposium, 2017 ASBMB Meeting, Chicago, IL, April 22-27, 2017

Symposium in honor of William B. Tolman, American Chemical Society Spring 2017 Meeting, San Francisco, CA, April 2-7, 2017

Symposium on C1 Catalysis, American Chemical Society Spring 2017 Meeting, San Francisco, CA, April 2-7, 2017

Latin American Meeting on Bioinorganic Chemistry, Queretaro, Mexico, October 18-22, 2016

Plenary Lecture, 10th International Copper Meeting, Sorrento, Italy, September 25-30, 2016

6th International Conference on Metals in Genetics, Chemical Biology and Therapeutics, ICMG-2016, Bangalore, India, February 17-20, 2016

Dioxygen Activation Chemistry of Metalloenzymes and Models Symposium, Pacificchem 2015, Honolulu, HI, December 15-20, 2015

UniCat 2015/CCSS Joint Scientific Meeting, Northwestern University, August 24-25, 2015

Cell Biology of Metals Gordon Research Conference, West Dover, VT, July 26-31, 2015

Metals in Biology in Wako Conference, Tokyo, Japan, June 16-18, 2015

19th International Conference on Cytochrome P450, Tokyo, Japan, June 12-15, 2015

5th Georgian Bay International Conference on Bioinorganic Chemistry (CanBIC-5), Parry Sound, Canada, May 19-23, 2015

Frontiers in Membrane Protein Structural Dynamics Conference, Chicago, IL, April 29-May 1, 2015

2015 Benjamin Franklin Medal Symposium in Honor of Stephen Lippard, Newark, DE, April 23, 2015

Inorganic Reaction Mechanisms Gordon Research Conference, Galveston, TX, March 1-6, 2015

9th International Copper Meeting, Vico Equense, Italy, October 5-10, 2014

Enzymes, Coenzymes, and Metabolic Pathways Gordon Research Conference, Waterville Valley, NH, July 13-18, 2014

Iron-Sulfur Enzymes Gordon Research Conference, Easton, MA, June 15-20, 2014

Plenary Lecture, Swedish Chemical Society Symposium, Lund, Sweden, May 22, 2014

Baker Symposium, Department of Chemistry and Chemical Biology, Cornell University, May 3, 2014

Priestley Award Symposium, 247th National Meeting of the American Chemical Society, Dallas, TX, March 16-20, 2014

Panel, Survival Skills for Female Graduate Students and Junior Faculty, Northwestern University Women's Center, February 5, 2014

Symposium in Honor of Professor David M. Dooley, Montana State University, Bozeman, MT, October 11-12, 2013

Sixteenth International Conference in Bioinorganic Chemistry (ICBIC16), Grenoble, France, July 14-19, 2013

C-H Activation Symposium, 245th National Meeting of the American Chemical Society, New Orleans, LA, April 7-11, 2013

UniCat biocatalysis workshop, Free University of Berlin, Berlin, Germany, March 17-19, 2013

Suddath Symposium, The Inorganic Face of Life: From Metalloproteins to Cells and Whole Organisms, Georgia Institute of Technology, Atlanta, GA, February 21-22, 2013

ARPA-E Workshop: Bio-technologies for methane to liquids conversion, Washington, DC, December 5, 2012

Plenary Lecture, International Symposium on Activation of Oxygen and Homogeneous Catalytic Oxidation, Jerusalem, Israel, September 2-7, 2012

Molecular Basis of Microbial One-carbon Metabolism Gordon Research Conference, Lewiston, ME, August 5-10, 2012

Protein Cofactors, Radicals, and Quinones Gordon Research Conference, South Hadley, MA, July 29-August 3, 2012

Keynote Lecture, 16th Annual Conference of the Swedish Structural Biology Network (SBNNet), Tällberg, Sweden, June 15-18, 2012

Plenary Lecture, International Symposium on Relations between Homogeneous and Heterogeneous Catalysis, Berlin, Germany, September 11-16, 2011

Structure, Mechanism and Regulation in Enzyme Catalysis Symposium, 2011 ASBMB Meeting, Washington, D. C., April 9-13, 2011

Dioxygen Activation Chemistry of Metalloenzymes and Models Symposium, Pacifichem 2010, Honolulu, HI, December 15-20, 2010

Plenary Lecture, UniCat biocatalysis workshop, Technical University of Berlin, Berlin, Germany, November 17-19, 2010

7th International Copper Meeting, Alghero, Sardinia, October 16-20, 2010

Goodman Award Symposium, American Chemical Society Fall 2010 Meeting, Boston, MA, August 22-26, 2010

Bioinorganic Chemistry Symposium, American Chemical Society Fall 2010 Meeting, Boston, MA, August 22-26, 2010

Molecular Basis of Microbial One-carbon Metabolism Gordon Research Conference, Lewiston, ME, August 1-6, 2010

FASEB Summer Research Conference on Trace Element Micronutrients: Basic and Applied Research, Snowmass, CO, June 13-18, 2010

Frontiers in Metallobiochemistry Summer Symposium in Molecular Biology, The Pennsylvania State University, University Park, PA, June 2-5, 2010

Metals in Biology Gordon Research Conference, Ventura, CA, January 30-February 5, 2010

Fourteenth International Conference in Bioinorganic Chemistry (ICBIC14), Nagoya, Japan, July 25-30, 2009

Panel, The Future of Science Education in the Liberal Arts, Amherst College, Amherst, MA, October 25, 2008

6th International Copper Meeting, Alghero, Sardinia, October 11-15, 2008

Biochemical Society Focused Meeting: Transition Metals in Biochemistry, University of East Anglia, UK, June 24-26, 2008

Pre-ICBIC14 Special Symposium: Dioxygen Activation by Metalloenzymes and Models, Nagoya University, Nagoya, Japan, March 20-21, 2008

Mini-Symposium on Metals in Biological Systems, Duquesne University, Pittsburgh, PA, December 7, 2007

Plenary Lecture, Thirteenth International Conference in Bioinorganic Chemistry (ICBIC13), Vienna, Austria, July 15-20, 2007

Molecular Basis of Microbial One-carbon Metabolism Gordon Research Conference, Oxford, UK, August 6-11, 2006

Enzymes, Coenzymes, and Metabolic Pathways Gordon Research Conference, Biddeford, ME, July 16-21, 2006

Environmental Bioinorganic Chemistry Gordon Research Conference, Andover, NH, June 18-23, 2006

Frontiers in Metallobiochemistry Summer Symposium in Molecular Biology, The Pennsylvania State University, University Park, PA, June 7-10, 2006

Plenary Lecture, Advanced Photon Source Users Meeting, May 3, 2006

Thursday night talk, Metals in Biology Gordon Research Conference, Ventura, CA, January 30-February 3, 2006

Dioxygen Activation Chemistry of Metalloenzymes and Models Symposium, Pacifichem 2005, Honolulu, HI, December 15-20, 2005

Keynote Speaker, Royal Society of Chemistry Dalton Discussion Meeting, Nottingham, UK, September 7-9, 2005

Twelfth International Conference in Bioinorganic Chemistry (ICBIC12), Ann Arbor, MI, July 31-

August 5, 2005

- Fourth International Meeting on Copper Homeostasis and its Disorders: Molecular and Cellular Aspects, Ischia, Italy, October 23-28, 2004
- Environmental Bioinorganic Chemistry Gordon Research Conference, Lewiston, ME, June 20-25, 2004
- Metals in Biology Symposium in Honor of Jenny P. Glusker, Fox Chase Cancer Institute, Philadelphia, PA, December 12, 2003
- International Symposium on Copper in Biology: From Novel Structures to New Cellular Functions, Konstanz, Germany, September 21-24, 2003
- Metalloenzyme Symposium, 226th National Meeting of the American Chemical Society, New York, NY, September 7-11, 2003
- The Impact of Genomics on Chemical Biology: a PRF Supported Summer School Program, Cornell University, Ithaca, NY, July 5-11, 2003
- Bioinorganic Chemistry Symposium, 58th Northwest Regional Section Meeting of the American Chemical Society, Bozeman, MT, June 12-14, 2003
- Washington College Women in Science-Sigma XI Symposium in Bioinorganic Chemistry, Chestertown, MD, April 8, 2003
- Graduate Research Seminar in Metals in Biology, Ventura, CA, February 6-9, 2003
- Enzyme Mechanisms Conference XVIII, Galveston Island, TX, January 4-7, 2003
- Third International Meeting on Copper Homeostasis and its Disorders: Molecular and Cellular Aspects, Ischia, Italy, October 6-8, 2002
- Coordination Chemistry of Metal Metabolism Symposium, 224th National Meeting of the American Chemical Society, Boston, MA, August 18-22, 2002
- American Society for Microbiology, 102nd General Meeting, Salt Lake City, UT, May 19-23, 2002
- Midwest Metals Meeting, Chicago, IL, May 11-12, 2002
- Tenth International Conference in Bioinorganic Chemistry (ICBIC10), Florence, Italy, August 26-31, 2001
- ALS Association Workshop for Young Investigators, Philadelphia, PA, October 26-27, 2000
- Lippard 2000: Inorganic Chemistry at the Beginning of the New Millennium, Cambridge, MA, October 6-8, 2000
- Annual Meeting of the Packard Fellows, Monterey, CA, September 6-9, 2000
- Metals in Biology Gordon Research Conference, Ventura, CA, January 23-28, 2000
- Ninth International Conference in Bioinorganic Chemistry (ICBIC9), Minneapolis, MN, July 11-16, 1999
- Quinone and Redox Active Amino Acid Cofactors Gordon Research Conference, Meriden, NH, June 13-18, 1999
- Chemical Crystallographic Analysis Symposium, Massachusetts Institute of Technology, Cambridge, MA, January 9, 1999
- Biological Electron Transfer Symposium, Northeast Regional Section Meeting of the American Chemical Society, Rochester, NY, October 22-25, 1995
- Eighth International Symposium on Microbial Growth on C1 Compounds, San Diego, CA, August 27-September 1, 1995
- Metal Carboxylates and Synthetic Models Symposium, 209th National Meeting of the American Chemical Society, Anaheim, CA, April 2-5, 1995
- Alkane Functionalization in Natural and Unnatural Systems Symposium, 207th National Meeting of the American Chemical Society, San Diego, CA, March 13-18, 1994

Seminars

- Gomberg Lecture, Department of Chemistry, University of Michigan, April 15, 2024
- Friends of Larry Taylor Lecture, Department of Chemistry, Virginia Tech, April 5, 2024
- Department of Chemistry, Texas A&M University, March 6, 2023
- Department of Chemistry, University of California, Davis, February 28, 2023
- Department of Chemistry and Biochemistry, The Ohio State University, December 5, 2022

got robot? FIRST Tech Challenge (FTC) Robotics Team, November 29, 2022
Department of Chemistry, Dartmouth College, April 28, 2022
Department of Chemistry, Yale University, April 25, 2022
Department of Biochemistry and Molecular Biology, University of Georgia, February 25, 2022
Hong Kong University Science Distinguished Lecture, March 1, 2021
Department of Chemistry Colloquium, North Carolina State University, February 26, 2021
Department of Chemistry, Pomona College, February 16, 2021
R. Gaurth Hansen Lecturer, Department of Chemistry and Biochemistry, Utah State University, Logan, UT, December 2, 2020
Chemistry-Biology Interface Training Program Seminar, University of Illinois, Urbana-Champaign, IL, February 27, 2020
Department of Biochemistry and Molecular Biology, University of Chicago, Chicago, IL, December 11, 2019
Class of 1960 Scholar Seminar, Biochemistry and Molecular Biology Program, Williams College, Williamstown, MA, September 20, 2019
2019 Edgar Fahs Smith Lecturer, Department of Chemistry, University of Pennsylvania, Philadelphia, PA, March 21, 2019
Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA, March 6, 2019
Bioengineering Lecture Series, California Institute of Technology, Pasadena, CA, February 4, 2019
Intrexon Corporation, South San Francisco, CA, September 17, 2018
Department of Biological Chemistry, University of Michigan, Ann Arbor, MI, September 11, 2018
Structural, Chemical, and Quantitative Biology Seminar, Departments of Chemistry and Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA, April 9, 2018
Department of Chemistry and Biochemistry, Swarthmore College, Swarthmore, PA, March 8, 2018
Department of Chemistry, Stanford University, Stanford, CA, March 2, 2018
Department of Chemistry, San Jose State University, San Jose, CA, March 1, 2018
Department of Chemistry, Colorado State University, Fort Collins, CO, February 20, 2018
Advanced Photon Source Colloquium Series, Argonne National Laboratory, Argonne, IL, December 6, 2017
Shanghai Institute of Materia Medica, Shanghai, China, October 21, 2017
Department of Chemistry, Nanjing University, Nanjing, China, October 19, 2017
Department of Chemical Biology, Peking University, Beijing, China, October 16, 2017
Environmental and Molecular Mechanisms of Health and Disease Seminar, Departments of Pharmacology, Molecular Biosciences, and Neuroscience, University of Texas, Austin, September 14, 2017
Department of Chemistry, Kalamazoo College, Kalamazoo, MI, February 16, 2017
Department of Chemistry, Johns Hopkins University, Baltimore, MD, April 26, 2016
ExxonMobil Research and Engineering, Clinton, NJ, March 7, 2016
Indian Association for the Cultivation of Sciences, Kolkata, India, February 15, 2016
Division of Biology Colloquium, Illinois Institute of Technology, April 27, 2015
Royal Society of Chemistry Joseph Chatt Award Lecture and Inorganic Biochemistry Discussion Group, University of York, York, UK, April 9, 2015
Royal Society of Chemistry Joseph Chatt Award Lecture, Kings College, London, UK, April 8, 2015
Royal Society of Chemistry Joseph Chatt Award Lecture, University of East Anglia, Norwich, UK, April 7, 2015
Science Salon & Humanities Hour, Lectures at Lunch for Staff, Northwestern University, February 26, 2015
Molecular Discovery Seminar, National Cancer Institute, December 4, 2014
Department of Structural Biology, University of Buffalo, and Hauptmann Woodward Institute, April 24, 2014
Department of Chemistry and Biochemistry, University of Notre Dame, December 6, 2013
Department of Chemistry, University of Akron, Akron, OH, October 22, 2013
Department of Chemistry and Biochemistry, Worcester Polytechnic Institute, December 12, 2012
Department of Chemistry, California Institute of Technology, April 23, 2012
Department of Chemistry and Biochemistry, University of California, San Diego, April 20, 2012
Department of Chemistry, University of California, Irvine, April 19, 2012

Department of Pharmacology, Case Western Reserve University, Cleveland, OH, October 17, 2011
Department of Chemistry, Duke University, Durham, NC, April 26, 2011
Department of Biochemistry, Molecular Biology, and Biophysics, University of Minnesota, Minneapolis, MN, March 23, 2011
Pollard Memorial Lecture, Department of Biochemistry and Molecular Biology, The Pennsylvania State University, University Park, PA, March 14, 2011
UOP/Honeywell Invitational Lecturer, UOP LLC, Des Plaines, IL, February 17, 2011
Vanderbilt Institute of Chemical Biology, Vanderbilt University, Nashville, TN, December 1, 2010
Biomolecular Student Seminar, Department of Chemistry, Emory University, Atlanta, GA, April 26, 2010
Biophysics Colloquium, Cornell University, Ithaca, NY, April 7, 2010
Department of Chemistry and Biochemistry, University of South Carolina, Columbia, SC, October 2, 2009
Department of Biochemistry, The University of Texas Health Science Center, San Antonio, TX, August 28, 2009
Department of Chemistry, Texas A&M University, College Station, TX, May 14, 2009
Department of Chemistry, Yale University, New Haven, CT, April 22, 2009
Departments of Molecular and Cell Biology and of Chemistry, University of California, Berkeley, November 3, 2008
Department of Chemistry, University of Illinois at Urbana-Champaign, Urbana, IL, September 30, 2008
Molecular Biophysics Program, University of Colorado, Boulder, CO, April 23, 2008
Department of Chemistry, University of Chicago, Chicago, IL, October 15, 2007
Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA, June 6, 2007
Department of Biochemistry and Molecular Biophysics, University of Arizona, Tucson, AZ, March 23, 2007
Department of Chemistry, Oberlin College, Oberlin, OH, November 15, 2006
Department of Biochemistry, University of Nebraska, Lincoln, NE, September 19, 2006
Department of Molecular Sciences, University of Kansas, Lawrence, KS, April 24, 2006
Membrane Protein Interest Groups (MPIG), National Institutes of Health, Bethesda, MD, April 12, 2006
Department of Chemistry and Biochemistry, Miami University of Ohio, Oxford, OH, December 1, 2005
Department of Chemistry, SUNY Buffalo, Buffalo, NY, October 14, 2005
Hauptmann-Woodward Medical Research Institute, Buffalo, NY, October 13, 2005
Biosciences Division, Argonne National Laboratory, September 29, 2005
Department of Chemistry, Williams College, Williamstown, MA, April 8, 2005
Keynote Address, Northwestern University Center for Talent Development Award Ceremony, June 5, 2004
Department of Chemistry, Inaugural Dow Lecturer, Amherst College, Amherst, MA, February 20, 2004
Department of Biochemistry and Molecular Biology, Michigan State University, East Lansing, MI, October 23, 2003
Center for Biochemical and Biophysical Studies, Northern Illinois University, DeKalb, IL, October 17, 2003
Department of Biochemistry, Medical College of Wisconsin, Milwaukee, WI, May 21, 2003
Departments of Biochemistry and Biology, Brandeis University, Waltham, MA, April 30, 2003
Department of Chemistry, University of Notre Dame, South Bend, IN, March 27, 2003
Department of Biological Sciences, Purdue University, West Lafayette, IN, September 18, 2002
Department of Biochemistry and Molecular Biology, University of Chicago, Chicago, IL, April 24, 2002
Department of Chemistry, University of Minnesota, Minneapolis, MN, March 11, 2002
Department of Chemistry and Chemical Biology, Harvard University, Cambridge, MA, February 25, 2002
Department of Chemistry, Stanford University, Stanford, CA, February 12, 2002
Department of Chemistry, Massachusetts Institute of Technology, Cambridge MA, June 5, 2001
Department of Chemistry, Indiana University, Bloomington, IN, April 27, 2001
Department of Biochemistry and Molecular Biology, Wayne State University School of Medicine, Detroit, MI, April 24, 2001
Protein Engineering Centre of Excellence, Department of Biochemistry and Structural Biology,

University of Toronto, Toronto, Canada, March 15, 2001
Department of Chemistry, University of Michigan, Ann Arbor, MI, March 9, 2001
Department of Biochemistry and Molecular Biology, Mayo Clinic and Foundation, Rochester, MN,
February 13, 2001
Department of Biological Sciences, University of Illinois at Chicago, Chicago, IL, April 18, 2000
Department of Chemistry and Biochemistry, Utah State University, Logan, UT, February 9, 2000
Department of Biochemistry, University of Utah Health Sciences Center, Salt Lake City, UT,
February 7, 2000
Department of Biochemistry, University of Wisconsin, Madison, WI, December 13, 1999
Department of Biochemistry and Molecular Biology, Finch University of Health Sciences/The
Chicago Medical School, North Chicago, IL, December 2, 1999
Department of Molecular Biology, The Scripps Research Institute, La Jolla, CA, November 4,
1999
Department of Biological and Chemical Sciences, Illinois Institute of Technology, Chicago, IL,
April 19, 1999
Department of Chemistry, Loyola University, Chicago, IL, October 15, 1998
Department of Chemistry, Amherst College, Amherst, MA, April 17, 1995
Department of Chemistry, University of Rochester, Rochester, NY, April 7, 1995
Department of Biology, Brookhaven National Laboratory, Upton, NY, March 16, 1995