CURRICULUM VITAE
CHARLES RUSSELL HILLE

Chancellor's Professor
Department of Biochemistry
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BIRTHDATE November 15, 1951

CITIZENSHIP U.S.

MARITAL STATUS Married, four children

EDUCATION B.S. with Honors (Chemistry) Texas Tech University, Lubbock, TX, 1974
Ph.D. (Biochemistry) Rice University, Houston, TX, 1979

PROFESSIONAL EXPERIENCE

Graduate Study (with Dr. John S. Olson, Rice University, Houston, TX), 9/74 – 8/78
Post-doctoral Study (with Dr. Vincent Massey, University of Michigan, Ann Arbor, MI), 9/78 – 8/81
Lecturer, Department of Biological Chemistry, University of Michigan, Ann Arbor, MI, 9/81 – 10/82
Assistant Professor, Dept. of Biological Chemistry, University of Michigan, Ann Arbor, MI, 11/82 – 8/85
Assistant Professor, Dept. Mol. Cell. Biochemistry, The Ohio State University, Columbus, OH, 8/85 – 8/90
Associate Professor, Dept. Mol. Cell. Biochemistry, The Ohio State University, Columbus, OH, 9/90 – 6/95
Professor, Dept. Mol. Cell. Biochemistry, The Ohio State University, Columbus, OH, 7/95 – 9/07
Professor, Department of Chemistry, The Ohio State University, Columbus, OH, 10/95 – 9/07
Chancellor's Professor, Dept. of Biochemistry, University of California, Riverside, 9/07 – present

HONORS AND AWARDS

Phi Kappa Phi Honors Fraternity, Texas Tech University, Lubbock, TX, April 1974
Rice University Fellowship, Rice University, Houston, TX, Academic Year, 1974 - 1975
Michigan Society of Fellows, University of Michigan, Ann Arbor, MI, August 1978 - August 1981
Simson Faculty Research Award, College of Medicine and Public Health, The Ohio State University, 1997
Humboldt Senior Research Prize, Alexander von Humboldt Foundation, Germany, 2003-2004
Fellow of the American Association for the Advancement of Science, October, 2004
Contributing Member, Faculty of 1000 Biology, 2006 - present
Wenner-Gren Fellow, University of Lund, Sweden, 2007
Chancellor's Professor, University of California, 2007
Humboldt Senior Research Prize, Alexander von Humboldt Foundation, Germany, 2011-2012

PROFESSIONAL SOCIETIES

American Association for the Advancement of Science
American Society of Biochemistry and Molecular Biology
Biophysical Society
American Chemical Society

RECENT PROFESSIONAL SERVICE

Editorial Board, The *Journal of Biological Chemistry*, July 1996 – June 2001; July 2002 – June, 2007
Co-Founder, Molybdenum and Tungsten Enzymes Gordon Conference, Plymouth, NH (July 1999)
Chair, Molybdenum and Tungsten Enzymes Nomenclature Committee (advisory to the IUBMB/Enzyme Commission); July 2001 – August 2003
Scientific Advisory Committee, International Symposia on Flavins and Flavoproteins, April 2003 – present
Chair, Computational Biophysics Study Section, National Institutes of Health – November, 2005
Contributor, Faculty of 1000 – August 2006-present
Member, Biophysical and Biochemical Sciences Fellowship Study Section – March, 2010
Local Organizing Committee, 14th International Symposium on Flavins and Flavoproteins – July 24-29, 2011

RECENT UNIVERSITY SERVICE/ADMINISTRATION

Chair, Department of Biochemistry, University of California, Riverside, August, 2007 – November, 2010
Member, Search Committee for CNAS Dean, UC Riverside, 2008
Member, Search Committee for Dean of the Medical School, UC Riverside, 2009
Chair, Structural Biology Search Committee, Department of Biochemistry – 2010/2011 Academic Year

RESEARCH INTERESTS

Structure/function relationships in redox-active enzymes; Inorganic biochemistry, particularly involving molybdenum; Spectroscopy of redox-active proteins; Biological electron transfer

ACTIVE GRANT SUPPORT

Department of Energy "Structure, Function and Reactivity of CO Dehydrogenase from *Oligotropha carboxidovorans*" (R. HIlle, PI) $480,000 TDC, 7/1/13 – 6/30/16

PEER-REVIEWED JOURNAL ARTICLES SINCE 2000

90. Hemann, C.F., Ilich, P., & Hille, R. (2003) Molecular vibrations of solvated lumazines. *Ab initio* reaction field calculations and experiment. *J. Phys. Chem.* **107**, 2139-2155.
91. Wei, C.-C., Wang, Z.-Q., Arvai, A.S., Hemann, C., Hille, R., Getzoff, E.D., & Stuehr, D.J. (2003) Structure of tetrahydrobiopterin tunes its electron transfer to the heme-dioxy intermediate in nitric oxide synthase. *Biochemistry* **42**, 1969-1977.
92. Lu, X., Nikolic, D., Mitchell, D.J., van Breemen, R.B., Mersfelder, J.A., Hille, R., & Silverman, R.B. (2003) A Mechanism for Substrate-Induced Formation of 6-Hydroxyflavin Mononucleotide Catalyzed by C30A Trimethylamine Dehydrogenase. *Bioorg. Med. Chem. Lett.* **13**, 4129-4132.
93. Wei, C.-C., Wang, Z.Q., Hemann, C.F., Hille, R., & Stuehr, D.J. (2003) A tetrahydrobiopterin radical forms and then becomes reduced during N-omega-hydroxyarginine oxidation by nitric oxide synthase. *J. Biol. Chem.* **278**, 46668-46673.
94. Hoke, K., Cobb, N., Armstrong, F.A., & Hille, R. (2004) Electrochemical studies of arsenite oxidase: an example of a highly cooperative two-electron molybdenum center. *Biochemistry* **43**, 1667-1674.
95. Choi, E.-Y., Stockert, A.L., Leimkühler, S., and Hille, R. (2004) Studies on the mechanism of action of xanthine oxidase. *J. Inorg. Biochem.* **98**, 841-848.
96. Okamoto, K., Matsumoto, K., Hille, R., Eger, B.T., Pai, E.F., & Nishino, T. (2004) The crystal structure of xanthine oxidoreductase during catalysis: implications for reaction mechanism and enzyme inhibition. (2004) *Proc. Natl. Acad. Sci. USA*. **101**, 7931-7936.
97. Leimkühler, S., Stockert, A.L., Igarashi, K., Nishino, T., & Hille, R. (2004) The role of active site glutamate residues in catalysis of *Rhodobacter capsulatus* xanthine dehydrogenase. *J. Biol. Chem.* **279**, 40437-40444.
98. Xiong, L., Seibert, M., Gusev, A.V., Wasielewski, M.R., Hemann, C., Hille, R., & Sayre, R.T. (2004) Substitution of a chlorophyll into the inactive branch pheophytin-binding site impairs charge separation in photosystem II. *J. Phys. Chem. B.* **108**, 16904-16911.
99. Hemann, C.F., Ilich, I., Stockert, A.L., Choi, E.-Y., & Hille, R. (2005) Resonance Raman studies of xanthine oxidase: the reduced enzyme•product complex with violapterin. *J. Phys. Chem. B.* **109**, 3023-3031.
100. Wei, C.C., Wang, Z.Q., Durra, D., Hemann, C., Hille, R., Garcin, E.D., Getzoff, E.D., and Stuehr, D.J. (2005) The three nitric-oxide synthases differ in their kinetics of tetrahydrobiopterin radical formation, heme-dioxy reduction and arginine hydroxylation. *J. Biol. Chem.* **280**, 8929-8935.
101. Cobb, N., Conrads, T., & Hille, R. (2005) The reaction of reduced dimethylsulfoxide reductase with dimethylsulfoxide. *J. Biol. Chem.* **280**, 11007-11017.
102. Doonan, C.J., Stockert, A.L., Hille, R., & George, G.N. (2005) Nature of the catalytically labile oxygen in the active site of xanthine oxidase. *J. Am. Chem. Soc.* **127**, 4518-4522.
103. Shi, W., Mersfelder, J., & Hille, R. (2005) The interaction of trimethylamine dehydrogenase with electron-transferring flavoprotein. *J. Biol. Chem.* **280**, 20239-20246.
104. Anderson, R.F., Hille, R., Shinde, S. and Cecchini, G. (2005) Electron transfer with succinate:ubiquinone oxidoreductase (SQR) of *Escherichia coli*. *J. Biol. Chem.* **280**, 33331-33337.
105. Astashkin, A.V., Hood, B.L., Feng, C., Hille, R., Mendel, R.R., Raitsimring, A.M., & Enemark, J.H. (2005) Studies of the Mo(V) forms of sulfite oxidase from *Arabidopsis thaliana* by pulsed EPR. *Biochemistry* **44**, 13274-13281.

106. Stuehr, D.J., Wei, C.C., Wang, Z.Q., and Hille, R. (2005) Exploring the redox reactions between heme and tetrahydrobiopterin in the nitric oxide synthases. *Dalton Trans*. **21**, 3427-3435.

107. Hemann, C.F., Hood, B.L., Fulton, M., Hänsch, R., Mendel, R.R., Kirk, M.L., & Hille, R. (2005) Spectroscopic and kinetic properties of sulfite oxidase from *Arabidopsis thaliana*: nature of the redox-active orbital and electronic structure contributions to catalysis *J. Am. Chem. Soc.* **127**, 16567-16577.

108. Pei, P., Horan, M.P., Hille, R., Hemann, C.F., Schwendoeman, S.P., & Mallery, S.R. (2006) Reduced nonprotein thiols inhibit activation and function of MMP-9. Implications for chemoprevention. *Free Rad. 447Biol. Med.* **41**, 1315-1324.

109. Kundu, T.K., Hille, R., Velayutham, M., & Zweier, J.L. (2007) Characterization of superoxide production from aldehyde oxidase: an important source of oxidants in biological tissues. *Arch. Biochem. Biophys.* **460**, 113-121.

110. Pauff, J.M., Hemann, C.F., Leimkühler, S., and Hille, R. (2007) The role of arginine 310 in catalysis and substrate specificity in xanthine dehydrogenase from *Rhodobacter capsulatus*. *J. Biol. Chem* **282**, 12785-12790.

111. Astashkin, A.V., Johnson-Winters ,K., Klein, E.L., Byrne, R.S., Hille, R., Raitsimring, A.M. & Enemark, J.H. (2007) Direct demonstration of the presence of coordinated sulfate in the reaction of *Arabidopsis thaliana* sulfite oxidase using ^{33}S-labeling and ESEEM spectroscopy. *J. Am. Chem. Soc.* **129**, 14800-14810.

112. Erzurum, S.C., Ghosh, S., Janocha, A.J., Xu, W., Bauer, S., Bryan, N.S., Tejero, J., Hemann, C., Hille, R., Stuehr, D.J., Geelisch, M., & Beall, C.M. (2007) Higher blood flow and circulating nitric oxide products offset high-altitude hypoxia among Tibetans. *Proc. Natl. Acad. Sci. USA* **104**, 17593-17598.

113. Cobb, N., Hemann, C.F., Polsinelli, G., Ridge, J.P., McEwan, A.G., & Hille, R. (2007) Spectroscopic and kinetic studies of Y114F and W116F mutants of DMSO reductase from *Rhodobacter capsulatus*. *J. Biol. Chem.,* **282**, 35519-35529.

114. Pauff, J.M., Zhang, J., Bell, C.E., & Hille, R. (2008) Substrate orientation in xanthine oxidase. The crystal structure of an intermediate in reaction with 2-hydroxy-6-methylpurine. *J. Biol. Chem*. **283**, 4818-4824.

115. Wei, C.-C., Wang, Z.-Q., Tejero, J., Yang, Y.-P., Hemann, C., Hille, R., & Stuehr, D.J. (2008) Catalytic Reduction of a Tetrahydrobiopterin Radical Within Nitric Oxide Synthase. *J. Biol. Chem*. **283**, 11734-11742.

116. Ilagan, R.P., Tiso, M., Konas, D.W., Hemann, C., Hille, R., & Stuehr, D.J. (2008) Differences in a conformational equilibrium distinguish catalysis bu the endothelial and neuronal nitric-oxide synthase flavoproteins. *J. Biol. Chem.* **283**, 19603-19615.

117. Pauff, J.M., Cao, H., & Hille, R. (2009) Substrate orientation at the molybdenum center of xanthine oxidase: crystal structures of complexes with xanthine and lumazine, *J. Biol. Chem.* **284**, 8751 - 8758.

118. Pauff, J.M. & Hille R. (2009) Inhibition studies of xanthine oxidase by luteolin, silibinin, quercitin and curcumin. *J. Med. Chem.* **72**, 725-731.

119. Wagener, N., Pierik, A., Ibdah, A, Hille, R. & Dobbek, H. (2009) The Mo-Se active site of nicotinate dehydrogenase. *Proc. Natl. Acad. Sci. USA*, **106**, 11055-11060.

120. Alzate, O., Hemann, C., Hille, R., & Dean, D.H. (2009) Ser 170 in the *Bacillus thuringiensis* Cry1Ab δ-endotoxin becomes anchored in the hydrophobic moiety upon protein insertion into *Manduca sexta* brush border membrane vescicles. *BMC Biochemistry* **10**, #25. DOI 10.1186/1471-2091-10-25

121. Spiegelhauer, O., Dickert, F., Mende, S., Niks, D., Hille, R., Ullmann, G.M., & Dobbek, H. (2009) Kinetic characterization of xenobiotic reductase A from *Pseudomonas putida* 86, *Biochemistry* **48**, 11412-11420.

122. Byrne, R.S., Hänsch, R., Mendel, R.R. & Hille, R. (2009) Demonstration of superoxide production by *Arabidopsis thaliana* sulfite oxidase. Insights into the oxidative half-reaction. *J. Biol. Chem.* **284**, 35479-35484.

123. Zhang, B., Hemann, C.F., & Hille, R. (2010) Kinetic and spectroscopic studies of the molybdenum-copper CO dehydrogenase from *Oligotropha carboxidovorans*. *J. Biol. Chem*., **285**, 12571-12578.

124. Duval, S., Santini, J.M., Nitschke, W., Hille, R., & Schoepp-Cothenet, B. (2010) The small AroB subunit of arsenite oxidase: Lessons on the [2Fe-2S] Rieske protein superfamily. *J. Biol. Chem*. **285**, 20442-20451.

125. Cao, H., Pauff, J.M., & Hille, R. (2010) Substrate orientation and catalytic specificity of xanthine oxidase: strictly ordered hydroxylation steps from hypoxanthine to uric acid., *J. Biol. Chem.* **285**, 28044-28053.

126. Wahl, B., Reichmann, D., Niks, D., Biester, H., Krompholz, N., Havemeyer, A., Clement, B., Meßerschmidt, T., Rothkegel, M., Hille, R., Mendel, R.R., & Bittner, F. (2010) Biochemical and spectroscopic characerization of the human mitochondrial amidoxime-reducing components hmARC-1 and hmARC-2 suggests the existence of a new molybdenum enzyme family in eukaryotes. *J. Biol. Chem.* **285**, 37847-37859.

127. Shanmugam, M., Zhang, B., McNaughton, R.L., Kinney, A., Hille, R. & Hoffman, B.M. (2010) The structure of formaldehyde-inhibited xanthine oxidase determined by 35 GHz ^{2}H ENDOR spectroscopy. *J. Am. Chem. Soc.* **132**, 14015-14017.

128. Tejero, J., Biswas, A., Haque, M.M., Wang, Z.-Q., Hemann, C., Varnado, C.L., Novince, Z., Hille, R., Goodwin, D.C. & Stuehr, D.J. (2011) Mesoheme-substitution reveals how heme electronic properties can influence the kinetic and catalytic parameters of neuronal NO synthase. *Biochem. J.* **433**, 163-174.

129. Service, R.J., Yano, J., McConnell, I., Hwang, H.J., Niks, D., Hille, R., Wydrzynski, T., Burnap, R.L., Hillier, W., & Debus, R.J. (2011) Participation of glutamate-354 of the CP43 in the ligation of Mn and the binding of substrate water in photosystem II. *Biochemistry* **50**, 63-81.

130. Havelius, K.G.V., Reschke, S., Horn, S., Döring, A., Niks, D., Hille, R., Schulzke, C., Leimkühler, S., & Haumann, M. (2011) The structure of the molybdenum site of YedY, a sulfite oxidase homologue from *Escherichia coli*. *Inorg. Chem.* **50**, 741-748.

131. Wilcoxen, J., Zhang, B. & Hille, R. (2011) The oxidative half-reaction of the molybdenum-copper CO dehydrogenase from *Oligotropha carboxidovorans*. *Biochemistry* **50**, 1910-1916.

132. Mtei, R., Lyashenko, G., Stein, B., Rubie, N., Hille, R. and Kirk, M.L. (2011) Spectroscopic and electronic structure studies of a DMSO reductase catalytic intermediate: implications for electron and atom transfer reactivity. *J. Am. Chem. Soc.* **133**, 9762-9774.

133. Cao, H., Hall, J. & Hille, R. (2011) X-ray crystal structure of arsenite-inhibited xanthine oxidase: μ-sulfido μ-oxo double bridge between molybdenum and arsenic in the active site. *J. Am. Chem. Soc.* **133**, 12414-12417.

134. Wilcoxen, J., Snider, S., & Hille, R. (2011) Substitution of silver for copper in the binuclear Mo/Cu cluster of CO dehydrogenase leads to partial retention of catalytic power. *J. Am. Chem. Soc.*, **133**, 12934-12936.

135. Lambeck, I.C., Fischer-Schrader, K., Niks, D., Roeper, J., Chi, J.-C., Hille, R. & Schwarz, G. (2012) The mechanism of inhibition of *Arabidopsis thailana* nitrate reductase by 14-3-3 protein. *J. Biol. Chem.* **287**, 4562-4571.

136. Pushie, M.J., Cotelesage, J.J.H., Lyashenko, G., Hille, R. & George, G.N. X-ray absorption spectroscopy of a quantitatively Mo(V) dimethyl sulfoxide reductase species. *Inorg. Chem.*, in press.

REVIEW ARTICLES SINCE 2003

19. Hille, R. (2003) Plants have SOX – the structure of sulfite oxidase from *Arabidopsis thaliana*. *Structure*, **11**, 1189-1190.

20. Hille, R. (2005) Molybdenum-containing hydroxylases. *Arch. Biochem. Biophys.* **433**, 107-116.

21. Hille R. (2006) Structure and function of xanthine oxidoreductase. *Eur. J. Inorg. Chem.* **10**, 1913-1926.

22. Hille, R. (2009) Are Metal-Carbon Bonds Formed in Molybdenum-Containing Enzymes? in *Metal Ions in the Life Sciences*, vol 6. (A. Sigel, H. Sigel and R.K.O. Sigel, eds.) RSC Publishing, Cambridge, UK, pp. 395-416.

23. Hille, R. (2010) EPR studies of xanthine oxidoreductase and other molybdenum-containing hydroxylases Ch. 5. in *Biological Magnetic Resonance* vol. 29, Metals in Biology: Applications of High-Resolution EPR to Metalloenzymes. (G. Hanson and L. Berliner, Jr., eds.) Springer, Berlin, pp. 91-121.

24. Hille, R. (2011) Arsenite oxidase: molecular, biological and environmental aspects. in *Handbook of Metalloproteins* Vols 4&5 (A. Messerschmidt, ed.), John Wiley & Sons, Ltd, Chichester, UK, pp. 533-540.

25. R. Hille & R.R. Mendel (2011) An overview of molybdenum in biology. *Coord. Chem. Rev.* **255**, 991-992.

26. Hille, R., Nishino, T., and Bittner, F. (2011) Eukaryotic molybdenum enzymes. *Coord. Chem. Rev.* **255**, 1179-1205.

27. Hille, R. (2012) The molybdenum-containing hydroxylases and related enzymes. In *Molybdenum: Its Biological and Coordination Chemistry* (A. Holder and W.E. Newton, eds.) Academic Press, in press.

28. Hille, R. (2013) The molybdenum oxotransferases and related enzymes. *Dalton Trans.* **42**, 3029-3042.

29. Dubois, D., Ragsdale, S.J., Rauchfuss, T., Hille, R., Fujita, E., Bercaw, J., Seefeldt, L., Reek, J.N.H., Appel, A., Kerfeld, C.A.and Dupuis, M. (2013) CO_2 Reduction: Comparing Natural and Synthetic Systems. *Chem. Rev*., in press.

PEER-REVIEWED BOOK CHAPTERS AND SYMPOSIUM PROCEEDINGS SINCE 2000

25. Mersfelder, J., Shi, W. and Hille, R. (2005) A linear free energy study of trimethylamine dehydrogenase. in *Flavins and Flavoproteins* (T. Nishino, R. Miura, M. Tanokura, K. Fukui eds.) ArchiTect, Inc., Tokyo, pp. 287-292.

26. Anderson, R.F., Hille, R., Shinde, S., and Cecchini, G. (2005) Electron transfer in succinate dehydrogenase. in *Flavins and Flavoproteins* (T. Nishino, R. Miura, M. Tanokura, K. Fukui eds.) ArchiTect, Inc., Tokyo, pp. 401-406.

27. Cao, H., Pauff, J.M., & Hille, R. (2010) Substrate Binding and Orientation in Xanthine Oxidase. *Indian J. Chem.* **50A**, 355-362.
28. Hillle, R. (2012) Xanthine oxidase and related enzymes. In *Encyclopedia of Metalloproteins* (R.R. Kretsinger, V.N. Uversky and E.A. Permyakov, eds.), Springer Press, in press.
29. Hille R. (2012) Pyranopterins. In *Encyclopedia of Biophysics* (V. Davidson, ed.), Springer Press, in press.
30. Wilcoxen, J., Zhang, B., & Hille, R. (2012) The oxidative half-reaction of CO dehydrogenase from *Oligotropha carboxidovorans*. In *Flavins and Flavoproteins* (S. Miller, R. Hille, and B. Palfey, eds.) University of California Press, Oakland, CA, in press.
31. Niks, D., Spiegelhauer, O., Dobbek, H. & Hille, R. (2012) Characterization of the 2-oxoquinoline monooxygenase reductase component from *P. putida* 86. In *Flavins and Flavoproteins* (S. Miller, R. Hille, and B. Palfey, eds.) University of California Press, Oakland, CA, in press.
32. Hille, R., Wilcoxen, J., Zhang, B., and Snider, S. (2012) Kinetic and EPR studies of CO dehydrogenase from *Oligotropha carboxidovorans*. In *Flavins and Flavoproteins* (S. Miller, R. Hille, and B. Palfey, eds.) University of California Press, Oakland, CA, in press.
33. Hall, J., Cao, H. & Hille, R. (2012) Cofactor insertion into members of the xanthine oxidase family of molybdenum- and flavin-containing enzymes. In *Flavins and Flavoproteins* (S. Miller, R. Hille, and B. Palfey, eds.) University of California Press, Oakland, CA, in press.
34. Anderson, R.F., Shinde, S.S., Maklashina, E., Rajagukguk, S, Hille, R., & Cecchini, G. (2012) Single electron transfers within the flavoprotein succinate:ubiquinone oixdoreductase (Complex II). In *Flavins and Flavoproteins* (S. Miller, R. Hille, and B. Palfey, eds.) University of California Press, Oakland, CA, in press.
35. Hille, R. The assimilatory nitrate reductases. In *Handbook of Flavoproteins*, vol 2 (R. Hille, S.M. Miller and B. Palfeys, eds), Walter de Gruyter, Berlin, in press.

Editorships

"Molybdenum in Living Systems" *Coord. Chem. Rev.* **255** (R.R. Mendel and R. Hille, Guest Editors for Vol. 255), ACS Press, New York, 2011.

Flavins and Flavoproteins: Proceedings of the 17th International Symposium on Flavins and Flavoproteins (S.M. Miller, R. Hille and B. Palfey, eds.), in press.

Handbook of Flavoproteins, Vols. I and II (R. Hille, S.M. Miller and B. Palfey, eds.) Walter de Gruyter, Berlin, in press.

Invited Talks at National and International Meetings (since 2003)

Midwest Metals Meeting, Washington University, St. Louis – May, 2003
Molybdenum and Tungsten Enzymes Gordon Conference, Meriden, NH – July, 2003
11th International Conference on Bioinorganic Chemistry, Cairns, Australia – July, 2003
7th European Symposium on Bioinorganic Chemistry, Garmisch-Partenkirschen, Germany – August, 2004
Molybdenum and Tungsten Enzymes Gordon Conference, Oxford, UK – July, 2005
Metals in Biology Gordon Conference, Ventura, CA – January, 2006
Curti Symposium on Flavins and Flavoproteins, University of Milan, Italy – October, 2006
FLAK Symposium, Brosarp, Sweden – June, 2007
Molybdenum and Tungsten Enzymes Gordon Conference, New London, NH – July, 2007
2nd Intl Conference on Vitamins, Coenzymes and Biofactors, University of Georgia – October, 2008
Molybdenum and Tungsten Enzyme Gordon Conference, Il Ciocco, Italy – July, 2009
Symposium on Advances in Biological Inorganic Chemistry, TIFR, Mumbai, India – November, 2009
Second International Symposium on Enzymes and Biocatalysis, Dalian, China – April, 2011 (Keynote Lecture)
Second International Symposium on Enzymes and Biocatalysis, Dalian, China – April, 2011 (Session Lecture)
17th International Symposium on Flavins and Flavoproteins, Berkeley, CA – July, 2011
Molybdenum and Tungsten Enzyme Conference, Edmonton, Alberta – August, 2011
DFG "Prosthetic Groups: Transport and Insertion" Meeting, Burg Warberg, Germany – September, 2011
US Department of Energy CO_2 Reduction Workshop, Annapolis, MD – October, 2011
Metal Hydrides in Biology Workshop, University of Oxford, UK – March, 2012
Trends in Enzymology 2012, Göttingen, Germany – June, 2012
Iron-Sulfur Enzymes Gordon Conference, Mount Holyoke College, MA – June, 2012
C1 Metabolism Gordon Conference, Bates College, NH – August, 2012

17th International Conference on Bioinorganic Chemistry, Grenoble, France – July, 2013

Invited Seminars (since 2003)

Department of Chemistry, University of Auckland, New Zealand – February, 2003
Department of Biochemistry, University of Texas Health Science Center, San Antonio – April, 2003
Department of Plant Biology, Technical University of Braunschweig, Germany – September, 2003
(Humboldt Lectures on Enzymology and Spectroscopy of Metalloenzymes)
Department of Microbiology, Technical University of Braunschweig, Germany – September, 2003
Department of Biophysics, Medical College of Wisconsin – February, 2004
Department of Biochemistry, Medical College of Wisconsin – May, 2004
Department of Microbiology, University of Halle, Germany – June, 2004
Department of Microbiology, University of Bayreuth, Germany – June, 2004
Departments of Biochemistry and Microbiology, Michigan State University – March, 2005
Department of Biochemistry, University of British Columbia – April, 2005
Department of Chemistry, University of New Mexico – September, 2005
Department of Biochemistry, University of California, Riverside – May, 2006
Department of Biochemistry, Temple University, Philadelphia – August, 2006
Instituto Mario Negri, Milan, Italy – October, 2006
Department of Biochemistry, University of California, Riverside – December, 2006
Center for Chemistry and Chemical Engineering, University of Lund, Sweden – June, 2007
Cellular, Molecular and Developmental Biology Program, University of Califoria, Riverside – October, 2007
Department of Chemistry and Biochemistry, Cal State, San Bernardino – January, 2008
Department of Chemistry, University of California, Davis – March, 2008
Department of Chemistry, University of California, Riverside – April, 2008
Department of Chemistry, University of Washington – April 2008
Institute of Biochemistry, University of Köln – July, 2008
Institute of Inorganic Chemistry, University of Göttingen – July, 2008
Center for Molecular Biosciences, University of Bayreuth – July, 2008
Department of Chemistry, San Diego State University – March, 2009
Institute of Biochemistry, University of Potsdam – June, 2009
Department of Chemistry and Biochemistry, University of Potsdam – June, 2009
Department of Chemistry, Indian Institute of Technology, Kanpur – November, 2009
Department of Biochemistry and Cell Biology, Rice University – April, 2010
Institute of Biochemistry, University of Potsdam, Germany – September, 2010
Institute of Biochemistry, University of Potsdam, Germany – September, 2011
Humboldt Lecture in Biochemistry
Institute of Biochemistry, University of Cologne, Germany – September ,2011
Humboldt Lecture in Biochemistry
Department of Biochemistry, University of Wisconsin, Madison – October, 2011
Mathematical Biosciences Institute, The Ohio State University – November, 2011
Department of Chemistry and Biochemistry, Cal State Fullerton – December, 2011
Department of Molecular Biology and Biochemistry, University of California, Irvine – April, 2012
Department of Chemistry, Trinity College, Dublin – May, 2012
Institute of Structural amd Molecular Biology, University College, London – May, 2012
Max Planck Institute for Terrestrial Microbiology, Marburg, Germany – June, 2012
Department of Structural Biology, University of Freiburg, Germany – June, 2012
Laboratory for Bacterial Biochemistry, CNRS Marseilles – July, 2012
New University of Lisbon, Lisbon, Portugal – July, 2013

The subject of these presentations was one of the following: (1) the mechanism of xanthine oxidase and other molybdenum enzymes; (2) the mechanism of trimethylamine dehydrogenase; (3) electron transfer in biological systems; (4) structure and function of arsenite oxidase; or (5) the mechanism of CO dehydrogenase.