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## BIOGRAPHICAL SKETCH

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NAME <b>Que, Lawrence, Jr.</b>	POSITION TITLE <b>Regents Professor</b>		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Ateneo de Manila University, Quezon City, Phils.	B.S.	1969	Chemistry
University of Minnesota, Minneapolis, MN	Ph.D.	1973	Chemistry
M.I.T., Cambridge, MA (w/ R.H. Holm)	Postdoctoral	1973-1974	Bioinorganic Chemistry
Univ. of Minnesota, Navarre, MN (w/ E. Münck)	Postdoctoral	1975-1977	Biochemistry/Biophys

### A. Positions and Honors

#### Positions and Employment

1977-1983 Assistant Professor, Department of Chemistry, Cornell University, Ithaca, NY  
1983-1987 Associate Professor, Department of Chemistry, University of Minnesota, Minneapolis, MN  
1987-present Professor, Department of Chemistry, University of Minnesota, Minneapolis, MN  
2009-present Regents Professor, University of Minnesota, Minneapolis, MN

#### Other Experience

1984-1988 Member, NIH Metallobiochemistry Study Section  
1992-1993 Chair-elect and then Chair, ACS Division of Inorganic Chemistry, Bioinorganic Subdivision  
1999 Chair of the Organizing Committee for 9th Int'l Conference on Bioinorganic Chemistry, Minneapolis, Minnesota)  
2000-present Chief Editor, *Journal of Biological Inorganic Chemistry*

#### Honors

1982-1986 Alfred P. Sloan Research Fellowship  
1982-1987 NIH Research Career Development Award  
2001 Elected Fellow of the American Association for the Advancement of Science  
2000-2010 NIH MERIT Award  
2005 Frontiers in Biological Chemistry Award from the Max-Planck-Institut für Bioanorganische Chemie  
2008 American Chemical Society Alfred Bader Award in Bioinorganic Chemistry  
2011 Royal Society of Chemistry Inorganic Reaction Mechanisms Award  
2012 Bailar Medal

### B. Selected peer-reviewed publications before 2010

Ray, K.; Lee, S. M.; Que, L., Jr., "Iron-oxidation-state-dependent O–O bond cleavage of meta-chloroperbenzoic acid to form an iron(IV)-oxo complex" *Inorg. Chim. Acta* **2008**, *361*, 1066-1069 (doi: 10.1016/j.ica.2007.07.039; PMID: PMC2352149)  
Company, A.; Palavicini, S.; Garcia-Bosch, I.; Mas-Ballesté, R.; Que, L., Jr.; Rybak-Akimova, E. V.; Casella, L.; Ribas, X.; Costas, M., Tyrosinase-Like Reactivity in a Cu<sup>III</sup><sub>2</sub>(μ-O)<sub>2</sub> Species. *Chem. Eur. J.* **2008**, *14*, 3535-3538.  
Chanda, A.; Shan, X.; Chakrabarti, M.; Ellis, W. C.; Popescu, D. L.; Tiago de Oliveira, F.; Wang, D.; Que, L., Jr.; Collins, T. J.; Münck, E.; Bominaar, E. L., (TAML)Fe<sup>IV</sup>=O Complex in Aqueous Solution: Synthesis and Spectroscopic and Computational Characterization. *Inorg. Chem.* **2008**, *47*, 3669-3678.  
Shan, X.; Que, L., Jr., Unexpected kinetic complexity in the formation of a nonheme oxoiron(IV) complex. *Chem. Commun.* **2008**, 2209-2011.  
Emerson, J. P.; Kovaleva, E. G.; Farquhar, E. R.; Lipscomb, J. D.; Que, L., Jr., Swapping metals in Fe- and Mn-dependent dioxygenases: Evidence for oxygen activation without a change in metal redox state.

- Proc. Natl. Acad. Sci. USA* **2008**, *105*, 7347-7352 (doi: 10.1073/pnas.0711179105; PMC2396700)
- Thibon, A.; England, J.; Martinho, M.; Young, V. G., Jr.; Frisch, J. R.; Guillot, R.; Girerd, J.-J.; Münck, E.; Que, L., Jr.; Banse, F., Proton- and Reductant-Assisted Dioxygen Activation by a Nonheme Iron(II) Complex to Form an Oxoiron(IV) Intermediate. *Angew. Chem. Int. Ed.* **2008**, *47*, 7064-7067 (doi: 10.1002/anie.200801832; PMC2652675)
- Oldenburg, P., D.; Mas-Balleste, R.; Que, L., Jr., Bio-Inspired Iron-Catalyzed Olefin Oxidations: Epoxidation Versus *cis*-Dihydroxylation in *Mechanisms in Homogeneous and Heterogeneous Epoxidation Catalysis*, Oyama, S. T., Ed.; Elsevier: Amsterdam, 2008, pp. 452-469.
- Que, L., Jr.; Tolman, W. B., Biologically inspired oxidation catalysis. *Nature* **2008**, *455*, 333-340 (doi:10.1038/nature07371)
- Jackson, T. A.; Rohde, J.-U.; Seo, M. S.; Sastri, C. V.; DeHont, R.; Ohta, T.; Kitagawa, T.; Münck, E.; Nam, W.; Que, L., Jr., Axial Ligand Effects on the Geometric and Electronic Structures of Nonheme Oxoiron(IV) Complexes. *J. Am. Chem. Soc.* **2008**, *130*, 12394-12407 (doi:10.1021/ja8022576; PMCID: PMC2574688)
- Ray, K.; England, J.; Fiedler, A. T.; Martinho, M.; Münck, E.; Que, L., Jr., An Inverted and More Oxidizing Isomer of  $[\text{Fe}^{\text{IV}}(\text{O})(\text{tmc})(\text{NCCCH}_3)]^{2+}$ . *Angew. Chem. Int. Ed.* **2008**, *47*, 8068-8071 (doi:10.1002/anie.200802219; PMCID: PMC2656284)
- Gunderson, W. A.; Zatsman, A. I.; Emerson, J. P.; Farquhar, E. R.; Que, L., Jr.; Lipscomb, J. D.; Hendrich, M. P., EPR Detection of Intermediates in the Enzymatic Cycle of an Extradiol Dioxygenase. *J. Am. Chem. Soc.* **2008**, *130*, 14465-14467. (doi: 10.1021/ja8052255; PMC Journal – in process).
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- Fiedler, A. T.; Shan, X.; Mehn, M. P.; Kaizer, J.; Torelli, S.; Frisch, J. R.; Kodera, M.; Que, L., Jr., Spectroscopic and Computational Studies of ( $\mu$ -Oxo)( $\mu$ -1,2-Peroxo)diiron(III) Complexes of Relevance to Nonheme Diiron Oxygenase Intermediates *J. Phys. Chem. A* **2008**, *112*, 13037-13044 (doi:10.1021/jp8038225; PMC Journal – in process)
- Xue, G.; Fiedler, A. T.; Martinho, M.; Münck, E.; Que, L., Jr., Insights into the P-to-Q Conversion in the Catalytic Cycle of Methane Monooxygenase from a Synthetic Model System. *Proc. Natl. Acad. Sci. USA* **2008**, *105*, 20615-20620 (doi:10.1073/pnas.0808512105; PMC Journal – in process)
- Feng, Y.; Ke, C.-y.; Xue, G.; Que, L., Jr., Bio-inspired arene *cis*-dihydroxylation by a non-haem iron catalyst modeling the action of naphthalene dioxygenase. *Chem. Commun.* **2009**, 50-56 (DOI: 10.1039/b817222f)
- Klinker, E. J.; Shaik, S.; Hajime, H.; Que, L., Jr., Two-State Reactivity Model Explains Unusual Kinetic Isotope Effect Patterns in C-H Bond Cleavage by Nonheme Oxoiron(IV) Complexes *Angew. Chem. Int. Ed.* **2009**, *48*, 1291-1295 (DOI: 10.1002/anie.200804029; NIHMSID: 121664)
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- Company, A.; Feng, Y.; Güell, M.; Ribas, X.; Luis, J. M.; Que, L., Jr.; Costas, M., Olefin-Dependent Discrimination Between Two Nonheme  $\text{HO-Fe}^{\text{V}}=\text{O}$  Tautomeric Species in Catalytic  $\text{H}_2\text{O}_2$  Epoxidations. *Chem. Eur. J.* **2009**, *15*, 3356-3362. (DOI:10.1002/chem.200802597)
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