

Curriculum Vitae

David B. Goodin, Ph.D.

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Department of Molecular Biology
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PERSONAL

Born May 29, 1955, Hobbs New Mexico, Married
Home Address: 3519 Dove Ct., San Diego, CA 92103

EDUCATION

- 1983 - 1987 Postdoctoral research with Prof. Michael Smith F.R.S., Nobel Laureate in Chemistry 1993. University of British Columbia, Vancouver, B.C.
- 1977 - 1983 Ph.D. in Chemistry, University of California, Berkeley, CA
- 1973 - 1977 B.S. in Chemistry, University of Oklahoma, Norman, OK

THESIS

- 1983 "The Local Structure of Manganese in the Photosynthetic Apparatus and Superoxide Dismutase: An X-Ray Absorption Study"
Ph.D. in Chemistry, University of California, Berkeley
Advisors: Prof. Kenneth Sauer, Prof. Melvin P. Klein

PROFESSIONAL EXPERIENCE

- 1994 - pres. Associate Professor, Department of Molecular Biology, The Scripps Research Institute, La Jolla, CA
- 1987 - 1994 Assistant Professor, Department of Molecular Biology, The Scripps Research Institute, La Jolla, CA
- 1983 - 1987 Postdoctoral Studies, Department of Biochemistry, University of British Columbia, Vancouver, B.C., CANADA
- 1977 - 1983 Graduate Studies, Department of Chemistry, University of California, Berkeley

HONORS

- 2006-2016 NIH MERIT award, Novel Substrate Oxidation by Heme Enzymes
- 2004 *ad hoc* NIH Study Section panel, Macromolecular Structure and Function A
- 1999 - 2003 Member, NIH Study Section panel, Metallobiochemistry
- 1997 *ad hoc* NIH Study Section panel, Physical Biochemistry
- 1994 *ad hoc* NIH Study Section panel, Biomedical Research Technology Resource review
- 1983 - 1985 Fellow, National Research Service Award, National Institutes of Health
- 1978 - 1981 Fellow, Graduate Minority Program, University of California, Berkeley
- 1977 - 1982 Fellow, Graduate and Professional Opportunity Program, University of California, Berkeley
- 1977 Phi Lambda Upsilon Outstanding Undergraduate Award, University of Oklahoma
- 1977 J.D. Gibson Memorial Research Award, University of Oklahoma
- 1977 Sigma Xi Student Research Award, University of Oklahoma

INVITED LECTURES (selected)

- 2006 European Biological Chemistry Conference – Peroxidases, Aviero , Portugal
- 2006 Department of Chemistry, North Carolina State Univ., Raleigh, NC
- 2006 Department of Chemistry, University of South Carolina, Columbia, SC
- 2005 International Society of Quantum Biology and Pharmacology, Staten Island, NY
- 2005 Department of Chemistry, Columbia University, New York, NY
- 2004 4th SW P450 meeting, Houston, TX
- 2004 Department of Biochemistry and Molecular Biology, University of Texas Health Science Center, Houston, TX
- 2004 3rd International Conference on Porphyrins and Phthalocyanines, New Orleans, LA
- 2004 Department of Biochemistry, Vanderbilt, Nashville, TN
- 2002 XIX Congress and General Assembly of the International Union of Crystallography, Geneva, Switzerland
- 2002 International Meeting of the Federation of European Biochemical Societies, Istanbul, Turkey

2002 Okaki Institute for Molecular Science Conference, Fronteir of Biomolecular Science, Okazaki, Japan

INVITED LECTURES (cont.)

2001 Dept. of Chemistry, University of North Carolina, Chapel Hill, NC
2000 Gordon Research Conference on Metals in Biology, Ventura, CA
2000 Department of Biochemistry and Biophysics, University of Pennsylvania, PA
2000 Gordon Research Conference on Tetrapyrroles, Newport, RI
2000 Dept. of Chemistry, University of Illinois, Urbana, IL

RESEARCH FUNDING

2006-2016 Novel Substrate Oxidation by Enzyme Engineering
NIH 2 R37 GM41049-18
Goodin - Principal Investigator
Priority Score: 118 (percentile: 1.6)
MERIT award designation, May 2006

2004-2008 Redox-active and Luminescent Probes for Heme Enzymes
NIH 1 R01 GM070868-01
Goodin - Principal Investigator
Priority Score: 157 (percentile: 16.3)

2002-2005 Novel Substrate Oxidation by Enzyme Engineering
NIH 2 R01 GM41049-14
Goodin - Principal Investigator
Priority Score: 142 (percentile: 3.7)

RESEARCH FUNDING (cont.)

- 1999-2002 Design of Redox-Active Metal-Heme hybrid Enzymes
NIH 2 P01 GM48495-06
Getzoff - Principal Investigator
Goodin - Project leader
Priority Score: 169 (ad hoc review, no percentile)
- 1999 Multi-User EPR Spectrometer at UCSD
NIH 1 S10 RR12903-01
Thiemens - Principal Investigator
Goodin - Key Personnel
Priority Score: 123 (no percentile)
- 1998-2001 Novel Substrate Oxidation by Enzyme Engineering
NIH 2 R01 GM41049-10
Goodin - Principal Investigator
Priority Score: 110 (percentile: 1.0)
- 1996-1997 Engineering Specific Binding and Oxidation Targets into an Enzyme
U.S. Army Director's Research Initiative Program
Goodin - Principal Investigator
- 1994-1998 A Protein Framework for Metalloprotein Model Complexes
NIH 3 P01 GM48495-02S2
Tainer - Principal Investigator
Goodin - Project leader, joining existing Program Project
Priority Score: 150 (ad hoc review, no percentile)

RESEARCH FUNDING (cont.)

- 1994-1997 Novel Substrate Oxidation by Enzyme Engineering
NIH 2 R01 GM41049-06
Goodin - Principal Investigator

Priority Score: 132 (percentile: 8.6)

1993-1998 Metalloprotein Structure and Design
NIH 5 P01 GM48495-01
Tainer - Principal Investigator
Goodin - Protein Expression Core Module Director

1989-1993 Determinants of Functional Diversity in Heme Enzymes
NIH 1 R29 GM41049
Goodin - Principal Investigator
Priority score: 129 (percentile: 1.9)

TRAINEES

Year	Name	Title	Current Position
2006 - pres.	Andrew Annalora, Ph.D.	Postdoctoral fellow	
2004 - pres.	Edith C. Glazer, Ph.D.	NIH NSRA Fellow	
2000 - 2005	Stefan Vetter, Ph.D.	Postdoctoral fellow	Asst. Professor Dept. of Chemistry Florida Atlantic Univ. Boca Raton, FL
2000 - 2002	David Mandelman, Ph.D.	Postdoctoral fellow	Invitrogen San Diego, CA
1999 - 2003	Anna-Maria Hays, Ph.D.	NIH NSRA Fellow	Ambrx San Diego, CA
1999 - 2002	Alycen Nigro, Ph.D.	Postdoctoral fellow	Asst. Professor Dept. of Chemistry Western CT State Univ. Danbury, CT
1999 - 2000	Mark Roach, Ph.D.	Postdoctoral fellow	ISIS Pharmaceuticals San Diego, CA
1999 - 2000	Prof. Marc Solioz, Ph.D.	Sabbatical fellow	Professor Dept. of Clin. Pharmacol. University of Berne,

			Switzerland
1998 - 1999	Shinichi Ozaki, Ph.D.	Visiting Scientist	Inst. for Mol. Science Okazaki, Japan
1997 - 2000	Judy Hirst, Ph.D.	Wellcome Trust fellow	Tenured Scientific Staff MRC Dunn Cambridge Univ., UK
1996 - 1997	Aditya Khindaria, Ph.D.	Postdoctoral fellow	CEO, iReadyWorld Inc. Charlotte, NC
1995 - 1997	Yi Cao, Ph.D.	Postdoctoral Fellow	Tanabe Research Lab. San Diego, CA
1994 - 1999	Sheri G. Wilcox	Graduate Student	SomaLogic Boulder, CO
1994 - 1998	Rabi A. Musah, Ph.D.	NIH NSRA fellow,	Assoc. Professor Dept. of Chemistry SUNY, Albany, NY
1993 - 1996	Melissa Fitzgerald, Ph.D.	NIH NSRA Fellow	Intellectual Property UCSD San Diego, CA
1993 - 1995	Gerard Jensen, Ph.D.	Postdoctoral fellow	Director, Protein Research, Gilead Sciences Los Angeles, CA
1990 - 1992	James A. Roe, Ph.D.	Postdoctoral fellow	Professor Dept. of Chemistry Loyola Marymount Univ. Los Angeles, CA

TSRI GRADUATE PROGRAM – THESIS COMMITTEES

Current	Eiton Kaltgrad
Current	Russel Gordley
Current	Megan Thielges
Current	Gabriel Lander
Current	Mitch Luna
2006	James Graziano, Ph.D.
2003	Mike Thompson, Ph.D.
2003	Amy Beltran, Ph.D.

2002	Beth Stroupe, Ph.D.
2002	Robin Rosenfeld, Ph.D.
2002	Mike Churchill, Ph.D.
2001	Kinya Hotta, Ph.D.
2000	Christopher Putnam, Ph.D.
1999	Sheri Wilcox, Ph.D.
1999	Melanie Nelson, Ph.D.
1998	Eric Peterson, Ph.D.
1997	Gavin MacBeath, Ph.D.
1996	Ying Tang, Ph.D.
1996	Brian Crane, Ph.D.
1996	Pamela Sears, Ph.D.
1995	Gary Gippert, Ph.D.
1994	Ted Tarasow, Ph.D.

TSRI GRADUATE PROGRAM – TEACHING

2001 - 2006	Metalloproteins and Metalloenzymes TSRI graduate lectures in Structure and Chemistry
1994	In Vitro Mutagenesis TSRI graduate lectures in Chemistry
1992 - 2002	Section organizer and lecturer Protein Engineering and Drug Design TSRI graduate lectures in Structure and Chemistry
1992 - 2000	Section organizer and lecturer Recombinant DNA methodology TSRI graduate lectures in Structure and Chemistry

PUBLICATIONS

65. Vetter, Stefan W., Osborne, R., Dawson, J.H. and Goodin, D.B. (2006) "Crystallographic and spectroscopic characterization of nitrophorin I mutant H60C: Evaluation of the lipocalin scaffold for heme protein engineering", *Biochemistry*, submitted.
64. Nigro, A.P. and Goodin, D.B. (2006) "Oxidative Potential of Compound III of a Peroxidase model for Nitric Oxide Synthase: Investigations of the Reaction between the Ferrous Oxy Complex of R48A/W191F Cytochrome c Peroxidase and N-Hydroxyguanidine", *J. Bioinorganic Chem.*, submitted.
63. Glazer, E.C, Le Nguyen, Y.H., Goodin, D.B., and Gray, H.B. (2006) "A Pterin-Ru(II) Sensitizer Wire Binds to Inducible Nitric Oxide Synthase", *J. Amer. Chem. Soc.*, submitted.
62. Contakes, S.M., Nguyen, Y.H.L., Gray, H.B., Glazer, E.C., Hays, A.-M.A., and Goodin, D.B. (2006) "Conjugates of Heme-Thiolate Enzymes with Photoactive Metal-Diimine Wires", in *Structure & Bonding*, Springer-Verlag, Berlin/Heidelberg, *in press*.
61. Brenk, R., Vetter, S., Boyce, S.E., Goodin, D.B., and Shoichet, B. (2006) "Probing Molecular Docking in a Charged Model Binding Site," *J. Mol. Biol*, **357**, 1449.
60. Udit, A.K., Belliston-Bittner, W., Glazer, E.C., Nguyen, Y.H.L., Gillan, J.M., Hill, M.G., Marletta, M.A., Goodin, D.B., Gray, H.B. (2005) "Redox Couples of Inducible Nitric Oxide Synthase," *J. Am. Chem. Soc* **127**, 11212.
59. Hays, A.-M.A., Dunn, A.R., Chiu, R., Gray, H.B., Stout, C.D., and Goodin, D.B. (2004) "Conformational States of Cytochrome P450cam Revealed by Trapping of Synthetic Molecular Wires," *J. Mol. Biol* **344**, 455.
58. Kroeck, L., Shivanyuk, A., Goodin, D.B., and Rebek, J., Jr. (2004) "Spin Labeling Monitors Weak Host-Guest Interactions," *Chemical Communications* **3**, 272.
57. Rosenfeld, R.J., Goodsell, D.S., Musah, R.A., Morris, G.M., Goodin, D.B., and Olson, A.J. (2003) "Automated Docking of Ligands to an Artificial Active Site: Augmenting Crystallographic Analysis with Computer Modeling," *Journal of Computer-Aided Molecular Design* **17**, 525.
56. Voegtle, H.L., Sono, M., Adak, S., Pond, A.E., Tomita, T., Perera, R., Goodin, D.B., Ikeda-Saito, M., Stuehr, D.J., and Dawson, J.H. (2003) "Spectroscopic Characterization of Five- and Six-Coordinate Ferrous-NO Heme Complexes. Evidence for Heme Fe-Proximal Cys Bond Cleavage in the Ferrous-NO Adducts of the Trp-409Tyr/Phe Proximal Environment Mutants of Neuronal NOS," *Biochemistry* **42**, 2475.
55. Hays, A.-M.A., Gray, H.B., and Goodin, D.B. (2003) "Trapping of Peptide-Based Surrogates in an Artificially Created Channel of Cytochrome c Peroxidase," *Protein Science* **12**, 278.
54. Bonagura, C.A., Bhaskar, B., Shimizu, H., Li, H., Sundaramoorthy, M., McRee, D.E., Goodin, D.B., and Poulos, T.L. (2003) "High-Resolution Crystal Structures and

Spectroscopy of Native and Compound I Cytochrome c Peroxidase," *Biochemistry* **42**, 5600.

53. Rosenfeld, R.J., Hays, A.-M.A., Musah, R.A., and Goodin, D.B. (2002) "Excision of a Proposed Electron Transfer Pathway in CCP and its Replacement by a Ligand-Binding Channel," *Protein Sci* **11**, 1251.
52. Pond, A.E., Hirst, J., Goodin, D.B., and Dawson, J.H. (2002) in *Oxygen and Life - Oxygenases, Oxidases and Lipid Mediators* (Ishimura, Y. Ed) pp 25-35, Elsevier, Amsterdam.
51. Musah, R.A., Jensen, G.M., Bunte, S.W., Rosenfeld, R.J., and Goodin, D.B. (2002) "Artificial Protein Cavities as Specific Ligand-Binding Templates: Characterization of an Engineered Heterocyclic Cation Binding Site that Preserves the Evolved Specificity of the Parent Protein," *J. Mol. Biol* **315**, 845.
50. Dunn, A.R., Hays, A.-M.A., Goodin, D.B., Stout, C.D., Chiu, R., Winkler, J.R., and Gray, H.B. (2002) "Fluorescent Probes for Cytochrome P450 Structural Characterization and Inhibitor Screening," *J. Am. Chem. Soc* **124**, 10254.
49. Pond, A.E., Ledbetter, A.P., Sono, M., Goodin, D.B., and Dawson, J.H. (2001) "Redox Enzymes: Correlation of Three-Dimensional Structure and Mechanism for Heme-Containing Oxygenases and Peroxidases," in *Electron Transfer in Chemistry* (Balzani, V., Ed.) pp 56-104, Wiley-VCH, Weinheim.
48. Ivancich, A., Dorlet, P., Goodin, D.B., and Un, S. (2001) "Multifrequency High-field EPR Study of the Trp and Tyr Radical Intermediates in WT and the W191G Mutant of CCP," *J. Am. Chem. Soc* **123**, 5050.
47. Hirst, J., Wilcox, S.K., Ai, J., Moënne-Loccoz, P., Loehr, T.M., and Goodin, D.B. (2001) "Replacement of the Axial Histidine Ligand with Imidazole in Cytochrome c Peroxidase.2. Effects on Heme Coordination and Function," *Biochemistry* **40**, 1274.
46. Hirst, J., Wilcox, S.K., Williams, P.A., Blankenship, J., McRee, D.E., and Goodin, D.B. (2001) "Replacement of the Axial Histidine Ligand with Imidazole in Cytochrome c Peroxidase. 1. Effects on Structure," *Biochemistry* **40**, 1265.
45. Bunte, S.W., Jensen, G.M., McNesby, K.L., Goodin, D.B., Chabalowski, C.F., Neiminen, R.M., Suhai, S., and Jalkanen, K.J. (2001) "Theoretical Determination of the Vibrational Absorption and Raman Spectra of 3-methylindole and 3-methylindole Radicals," *Chemical Physics* **265**, 13.
44. Bateman, L., Léger, C., Goodin, D.B., and Armstrong, F.A. (2001) "A Distal Histidine Mutant (H52Q) of Yeast CcP Catalyzes the Oxidation of H₂O₂ instead of its Reduction," *J. Am. Chem. Soc* **123**, 9260.
43. Vaino, A.R., Goodin, D.B., and Janda, K.D. (2000) "Investigating Resins for Solid Phase Organic Synthesis: The Relationship Between Swelling and Microenvironment As Probed By EPR and Fluorescence," *J. Comb. Chem* **2**, 330.
42. Hirst, J., and Goodin, D.B. (2000) "Unusual oxidative chemistry of N ω -hydroxyarginine and N-hydroxyguanidine catalyzed at an engineered cavity in a heme peroxidase," *J. Biol. Chem* **275**, 8582.

41. Viles, J.H., Cohen, F.E., Prusiner, S.B., Goodin, D.B., Wright, P.E., and Dyson, H.J. (1999) "Copper binding to prion protein: Structural implications of four identical cooperative binding sites," *Proc. Natl. Acad. Sci. USA* **96**, 2042.
40. Schipke, C.G., Goodin, D.B., McRee, D.E., and Stout, C.D. (1999) "Oxidized and Reduced *Azotobacter vinelandii* Ferredoxin I at 1.4 Å Resolution: Conformational Change of Surface Residues without Significant Change in the [3Fe-4S]⁺⁰ Cluster," *Biochemistry* **38**, 8228.
39. Pond, A.E., Sono, M., Elenkova, E.A., Goodin, D.B., English, A.M., and Dawson, J.H. (1999) "Influence of Protein Environment on Magnetic Circular Dichroism Spectral Properties of Ferric and Ferrous Ligand Complexes of Yeast Cytochrome c Peroxidase," *Biospectroscopy* **5**, 42.
38. Pond, A.E., Sono, M., Elenkova, E.A., McRee, D.E., Goodin, D.B., English, A.M., and Dawson, J.H. (1999) "MCD Studies of Cytochrome c Peroxidase From Yeast: Investigation of the Effects of Aging and pH on the Active Site Heme Coordination Sphere of the Ligand-Free Ferric State," *J. Inorg. Biochem* **76**, 165.
37. Wilcox, S.K., Putnam, C.D., Sastry, M., Blankenship, J., Chazin, W.J., McRee, D.E., and Goodin, D.B. (1998) "Rational Design of a Functional Metalloenzyme: Introduction of a Site for Manganese Binding and Oxidation into a Heme Peroxidase," *Biochemistry* **37**, 16853.
36. Mondal, M.S., Goodin, D.B., and Armstrong, F.A. (1998) "Simultaneous Voltammetric Comparisons of Reduction Potentials, Reactivities, and Stabilities of the High-Potential Catalytic States of Wild-Type and Distal-Pocket Mutant (W51F) Yeast Cytochrome c Peroxidase," *J. Am. Chem. Soc* **120**, 6270.
35. Liu, K., Williams, J., Lee, H., Fitzgerald, M.M., Jensen, G.M., Goodin, D.B., and McDermott, A.E. (1998) "Solid-State Deuterium NMR of Imidazole Ligands in CcP," *J. Am. Chem. Soc* **120**, 10199.
34. Jensen, G.M., Bunte, S.W., Warshel, A., and Goodin, D.B. (1998) "Energetics of Cation Radical Formation at the Proximal Active Site Trp of CCP and Ascorbate Peroxidase," *J. Phys. Chem. B* **102**, 8221.
33. Cao, Y., Musah, R.A., Wilcox, S.K., Goodin, D.B., and McRee, D.E. (1998) "Protein Conformer Selection by Ligand Binding Observed with Crystallography," *Protein Science* **7**, 72.
32. Sun, J., Fitzgerald, M.M., Goodin, D.B., and Loehr, T.M. (1997) "The Solution and Crystal Structures of the H175G Mutant of CcP: A Resonance Raman Study," *J. Am. Chem. Soc* **119**, 2064.
31. Musah, R.A., and Goodin, D.B. (1997) "Introduction of Novel Substrate Oxidation into a Heme Peroxidase by Cavity Complementation: Oxidation of 2-aminothiazole and Covalent Modification of the Enzyme," *Biochemistry* **36**, 11665.
30. Musah, R.A., Jensen, G.M., Rosenfeld, R.J., Bunte, S.W., McRee, D.E., and Goodin, D.B. (1997) "Variation in Strength of a CH to O Hydrogen Bond in an Artificial Cavity," *J. Am. Chem. Soc* **119**, 9083.

29. Sarma, S., DiGate, R.J., Goodin, D.B., Miller, C.J., and Guiles, R.D. (1997) "Effect of Axial Ligand Plane Reorientation on Electronic and Electrochemical Properties Observed in Site Directed Mutants of Rat Cytochrome b5," *Biochemistry* **36**, 5658.
28. Sun, J., Fitzgerald, M.M., Goodin, D.B., and Loehr, T.M. (1997) "The Solution and Crystal Structures of the H175G Mutant of Cytochrome c Peroxidase: A Resonance Raman Study," *J. Am. Chem. Soc* **119**, 2064.
27. Goodin, D. B. (1996) "When an Amide is More Like Histidine than Imidazole: the Role of Axial Ligands in Heme Catalysis," *J. Biol. Inorg. Chem* **1**, 360.
26. Smulevich, G., Hu, S., Rodgers, K.R., Goodin, D.B., Smith, K.M., and Spiro, T. G. (1996) "Heme-Protein Interactions in CcP Revealed by Site-Directed Mutagenesis and Resonance Raman Spectra of Isotopically-Labeled Hemes," *Biospectroscopy* **2**, 365.
25. Fitzgerald, M.M., Musah, R.A., McRee, D. E., and Goodin, D.B. (1996) "A Ligand-Gated, Hinged Loop Rearrangement Opens a Channel to a Buried Artificial Protein Cavity," *Nature Structural Biology* **3**, 626.
24. Wilcox, S.K., Jensen, G.M., Fitzgerald, M.M., McRee, D.E., and Goodin, D.B. (1996) "Altering Substrate Specificity at the Heme Edge of Cytochrome c Peroxidase," *Biochemistry* **35**, 4858.
23. Jensen, G.M., Goodin, D.B., and Bunte, S.W. (1996) "Density Functional and MP2 Calculations of Spin Densities of Oxidized 3-methyl indole: Models for Tryptophan Radicals," *J. Phys. Chem* **100**, 954.
22. Huyett, J.E., Doan, P.E., Gurbiel, R., Houseman, A.L.P., Sivaraja, M., Goodin, D.B., and Hoffman, B.M. (1995) "Compound ES of Cytochrome c Peroxidase Contains a Trp π -Cation Radical: Characterization by CW and Pulsed Q-Band ENDOR," *J. Am. Chem. Soc* **117**, 9033.
21. Miller, V.P., Goodin, D.B., Friedman, A.E., Hartmann, C., and Ortiz de Montellano, P.R. (1995) "Horseradish Peroxidase Phe-172 > Tyr Mutant: Sequential Formation of Compound I with a Porphyrin Radical Cation and a Protein Radical," *J. Biol. Chem* **270**, 18413.
20. Fitzgerald, M.M., Trester, M.L., Jensen, G.M., McRee, D.E., and Goodin, D.B. (1995) "The Role of Aspartate-235 in the Binding of Cations to an Artificial Cavity at the Radical Site of CcP," *Protein Science* **4**, 1844.
19. Patterson, W.R., Poulos, T.L., and Goodin, D.B. (1995) "Identification of a Porphyrin π -Cation Radical in Ascorbate Peroxidase Compound I," *Biochemistry* **34**, 4342.
18. McRee, D.E., Jensen, G.M., Fitzgerald, M.M., Siegel, H.A., and Goodin, D.B. (1994) "Construction of a Bis-aquo Heme Enzyme and Replacement with Exogenous Ligands," *Proc. Natl. Acad. Sci. U.S.A* **91**, 12847.
17. Fitzgerald, M.M., McRee, D.E., Churchill, M.J., and Goodin, D.B. (1994) "Small Molecule Binding to an Artificially Created Cavity at the Active Site of Cytochrome c Peroxidase," *Biochemistry* **33**, 3807.
16. Roe, J.A., and Goodin, D.B. (1993) "Enhanced Oxidation of Aniline Derivatives by Two Mutants of Cytochrome c Peroxidase at Tryptophan 51," *J. Biol. Chem* **268**, 20037.

15. Goodin, D.B., and McRee, D.E. (1993) "The Asp-His-Fe Triad of Cytochrome *c* Peroxidase Controls the Reduction Potential, Electronic Structure, and Coupling of the Tryptophan Free Radical to the Heme," *Biochemistry* **32**, 3313.
14. Houseman, A.L.P., Doan, P.E., Goodin, D.B., and Hoffman, B.M. (1993) "Comprehensive Explanation of the Anomalous EPR Spectra of Wild-Type and Mutant Cytochrome *c* Peroxidase Compound ES," *Biochemistry* **32**, 4430.
13. Goodin, D.B., Davidson, M.G., Roe, J.A., Mauk, A.G., and Smith, M. (1991) "Amino Acid Substitutions at Tryptophan-51 of Cytochrome *c* Peroxidase - Effects on Coordination, Species Preference for Cytochrome *c*, and Electron Transfer," *Biochemistry* **30**, 4953.
12. Watson, W.H., Nagl, A., Marchand, A.P., Vidyasagar, V., and Goodin, D.B. (1990) "Structure of a Dimer Ketone Formed via Iron Carbonyl-Promoted Coupling of 7-Phenylnorbornadiene with Carbon Monoxide," *Acta Crystallogr.* **C46**, 1127.
11. Sivaraja, M., Goodin, D.B., Smith, M., and Hoffman, B.M. (1989) "Identification by ENDOR of Trp191 as the Free-Radical Site in Cytochrome *C* Peroxidase Compound ES," *Science* **245**, 738.
10. Ner, S.S., Goodin, D.B., and Smith, M. (1988) "A Simple and Efficient Procedure for Generating Random Point Mutations and for Codon Replacements Using Mixed Oligodeoxynucleotides," *DNA* **7**, 127.
9. Ner, S.S., Goodin, D.B., Pielak, G.J., and Smith, M. (1988) "A Rapid Droplet Method for Sanger Dideoxy Sequencing," *BioTechniques* **6**, 408.
8. Smith, M., Cutler, R.L., Goodin, D.B., Mauk, A.G., and Pielak, G.J. (1987) "Structure-Function Studies on Yeast Heme Proteins Using Oligonucleotide Mutagenesis," *UCLA Symp. Mol. Cell. Biol., New Ser* **69**, 167.
7. Goodin, D.B., Mauk, A.G., and Smith, M. (1987) "The Peroxide Complex of Yeast Cytochrome *c* Peroxidase Contains Two Distinct Radical Species, Neither of which Resides at Methionine 172 or Tryptophan 51," *J. Biol. Chem* **262**, 7719.
6. Goodin, D.B., Mauk, A.G., and Smith, M. (1986) "Studies of the Radical Species in Compound ES of Cytochrome *c* Peroxidase Altered by Site-Directed Mutagenesis," *Proc. Natl. Acad. Sci. U.S.A* **83**, 1295.
5. Marchand, A.P., Goodin, D.B., Hossain, M.B., and Van der Helm, D. (1984) "Stereochemistry of the Reaction of 7-Substituted Norbornadienes with Iron Carbonyls. 2. Reaction of Fe(CO)₅ with 7-Phenyl- and 7-*o*-Anisylnorbornadiene," *J. Org. Chem* **49**, 2897.
4. Goodin, D.B., Yachandra, V.K., Britt, R.D., Sauer, K., and Klein, M.P. (1984) "The State of Manganese in the Photosynthetic Apparatus. 3. Light-Induced Changes in X-Ray Absorption (K-Edge) Energies of Manganese in Photosynthetic Membranes," *Biochim. Biophys. Acta* **767**, 209.
3. Goodin, D.B., Yachandra, V.K., Guiles, R., Britt, R.D., McDermott, A., Sauer, K., and Klein, M.P. (1984) "Light-Induced Changes in X-Ray Absorption (K-Edge) Energies of Manganese in Photosynthetic Membranes," in *EXAFS and Near Edge Structure III*

(Hodgson, K.O., Hedman, B., and Penner-Hahn, J.E., eds.), pp. 130, Springer-Verlag, Berlin.

2. Acrivos, J.V., Hathaway, K., Reynolds, J., Code, J., Parkin, S., Klein, M.P., Thompson, A., and Goodin, D.B. (1982) "Measurement of Synchrotron X-Ray Energies and Line Shapes Using Diffraction Markers," *Rev. Sci. Instrum.* **53**, 575.
1. Kirby, J.A., Goodin, D.B., Wydrzynski, T., Robertson, A.S., and Klein, M.P. (1981) "State of Manganese in the Photosynthetic Apparatus. 2. X-ray Absorption Edge Studies on Manganese in Photosynthetic Membranes," *J. Am. Chem. Soc* **103**, 5537.