

Biographical Sketch

Thomas L. Poulos

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Citizenship: U.S.

Education: B.A. in Zoology, Univ. Calif., Santa Barbara June, 1968.
Ph.D. in Biology, Univ. Calif., San Diego 1972.

Professional Experience:

1/68-9/72 NIH predoctoral trainee
1/73-4/78 Postgraduate Research Chemist, Dept. Chem., UCSD.
4/78-7/81 Assistant Research Chemist, Dept. Chem., UCSD.
7/81-10/83 Associate Research Chemist, Dept. Chem., UCSD.
10/83-3/84 Principal Research Scientist, Genex, Corp. Gaithersburg, MD
3/85-3/87 Director, Protein Engineering Dept., Genex Corp.
3/87-12/91 Professor of Biochemistry, Univ. of Maryland and Director of Center for
Advanced Research in Biotechnology.
1/92-present Professor of Molec. Biol. and Biochem. Univ. Calif., Irvine
1/93-10/05 Director of Structural Molecular Biology Program UCI Cancer Center
7/99-2003 Director IRU in Macromolecular Structure
7/00-present Chancellor's Professor
7/01-present Joint Appointment, Dept. Chemistry
2005-2008 Director, Program in Pharmaceutical Sciences
01/04-present Co-Director Center for Chemical and Structural Biology
2009-2015 Co-Director of Chemical and Structural Biology Program in UCI Comprehensive
Cancer Center
2017 Distinguished Professor

Professional societies:

American Crystallographic Association; American Society of Biological Chemists; American
Chemical Society; New York Academy of Sciences; Protein Society; American Society for
Pharmacology and Experimental Therapeutics; American Association for the Advancement of
Science

Other Activities:

1988-1991 NSF Biophysics Review Panel
1988 Chairman, Biotechnology Review Subcommittee of the NSF Emerging
Engineering Technologies Advisory Committee

CV Nov. 2018

1995 Member of Organizing Committee for International Symp. on Microsomes and Drug Oxidations
6/96- 2001 Editorial Board Journal of Biological Chemistry
6/95-2000 Journal Of Bioinorganic Chemistry Advisory Board
1997 Co-Organizer 13th West Coast Protein Crystallography Workshop
1997-2002 Member of NIH Metallobiochemistry Study Section
1997 Organized Workshop on Homology Modeling at the 10th Internal Conf. on P450s
2001 Internat. Scientific Comm. for 11th International Conf. on P450s
2000-2002 Chair, Metallobiochemistry Study Section
2002 Local Organizer for P450 Biodiversity Meeting
2005-2010 Editorial Board Journal of Biological Chemistry
2008 Chair of NIH/DOE Review Panel for Protein Crystallography at the National Synchrotron Light Source at Brookhaven
2008 Int. Advisory Committee for 9th Intl. Symposium on P450 Biodiversity
2010-present National Cancer Institute Board of Scientific Counselors
2011 Co-organizer of 20th West Coast Protein Crystallography Workshop
2013-2016 ASBMB Publication Committee
2016-present SSRL Advisory Committee

Awards:

Presidential Medal for Meritorious Service, University of Maryland 1991; B.B. Brodie Award in Drug Metabolism from the Amer. Soc. of Pharmacology and Exp. Therapeutics, 2004; Fellow AAAS, 2005; ACS Gordon Hammes Biochemistry Lectureship, 2014

Invited Seminars 2007-present

2007

Senomyx Inc. Ja Lolla Feb. 2007; Molecular Basis of Disease Distinguished Lecture, Georgia State Univ. Oct. 2007

2008

Dept. Biochemistry, University of Minnesota

2009

Center for Advanced Research in Biotechnology

2010

Gilead Bioscience; University of Kansas

2011

J. Clarence Karcher Lecture, University of Oklahoma, April 2011; Guy F. Lipscomb Lecture University of South Carolina, Oct. 2011

2013

Univ. of Minnesota, Sept. 2013; Wisconsin College of Med., Dec. 2013; Northwestern Dec. 2013.

2014

Vanderbilt University, Feb. 2014

UC IMIND Feb 2014

2015

State University of New York Stony Brook, Sept. 2015

Schrödinger, Sept. 2015

2016

Univ. Kansas, April 2016

Chapman University, Nov. 2016

2018

Kansas State Univ., April 2018

Fink Symposium Lecturer UC Santa Cruz, Oct. 2018

Invited Speaker at Meetings 2007-present

2007

The Third International Symposium on Chemistry of Coordination Space - ISCCS 2007, Awaji Japan

2008

9th International Symposium on Cytochrome P450 Biodiversity and Biotechnology, Nice France

8th Internal Peroxidase Symposium, Finland; Tetrapyrroles Gordon Conference Keynote

Speaker

2009

Intr. Conf. on Bioinorganic Chemistry, Nagoya Japan. July 2009 Invited speaker

2010

Metals in Biology Gordon Conf, Feb. 2010; P450 Biodiversity and Biotechnology, Woods Hole, Oct.

2010 Invited Speaker and Session Organizer; Oxidative Enzymes as Sustainable Industrial Biocatalysts

Sept. 2010, Santiago de Compostela, Spain Invited keynote speaker

2011

17th Intl. Conf. on P450, Manchester UK Invited Speaker

2012

Cytochrome P450 Biodiversity, Torin, Italy June 2012. Invited speaker and member of international organizing committee

50th Anniversary Symposium on Cytochrome P450, Fukuoka Japan Dec. 2-3 2012

2012

Cytochrome P450 Biodiversity, Torin, Italy June 2012. Invited speaker and member of international organizing committee; 50th Anniversary Symposium on Cytochrome P450, Fukuoka Japan Dec. 2-3 2012

2013

18th Intl. Conf. on P450, Seattle WA, Invited Speaker;

2014

Microsomes and Drug Oxidation Stuttgart Germany, May 2014; Trends in Enzymology, Manchester UK

June 2014; P450 Biodiversity, Kyoto Japan, Sept. 2014; ACS Gordon Hammes Biochemistry

Lectureship, Aug. 2014

2015

19th Intl. Conf. on P450, Tokyo June 2015; Enzymes, Coenzymes, and Metabolic Pathways Gordon Conf,

July 2015; Pacific Rim Conf., Oahu Dec. 2015

2016

International Conf. on Porphyrins and Phtalocyanines

Najing, China July 2016

P450 Biodiversity Vancouver, Canada July 2016

2017

25th Enzyme Mechanism Conference Tampa Bay, Florida Jan. 2017; 20th Intl. Conf. on P450s, Dusseldorf, Germany Sept 2017

Great Lakes Drug Metabolism Kalamzoo, MI, March 2017

P450 Biophysics and Biochemistry, Dusseldorf Germany, August 2017

2018

ACS Borovik Symposium New Orleans, March 2018

P450 Biodiversity York UK, July 2018

PUBLICATIONS

<http://www.ncbi.nlm.nih.gov/pubmed?cmd=search&term=poulos+tl>

1. Poulos TL and Rayle DL (1971) The cell wall bonds broken during extension growth *Plant Physiol. (Suppl.)* **47**, 43.
2. Poulos TL and Price P (1971) The identification of a tryptophan residue essential to the catalytic activity of pancreatic DNase *J. Biol. Chem.* **246**, 4041.
3. Poulos TL and Price P (1974) Some effects of calcium ions on the structure of bovine pancreatic DNase, T.L. Poulos and P. Price, *J. Biol. Chem.* **247**, 1097.
4. Poulos TL and Price P (1974) The involvement of serine and carboxyl groups in the activity of bovine pancreatic DNase *J. Biol. Chem.* **249**, 1453.
5. Poulos TL, Alden RA, Freer ST, Birktoft JJ and Kraut J (1976) Polypeptide halomethyl ketones bind to serine proteases as analogs of the tetrahedral intermediate *J. Biol. Chem.* **251**, 1097.
6. Poulos TL, Freer ST, Alden RA, Xuong NH, Edwards SL, Hamlin RC and Kraut J (1978) Crystallographic determination of the heme orientation and location of the cyanide binding site in yeast cytochrome c peroxidase *J. Biol. Chem.* **253**, 3730.
7. Poulos TL, Freer ST, Alden RA, Edwards SL, Skoglund U, Takio K, Xuong NH, Yonetani T and Kraut J (1980) The crystal structure of yeast cytochrome c peroxidase *J. Biol. Chem.* **255**, 575.
8. Poulos TL and Kraut J (1980) The stereochemistry of peroxidase catalysis *J. Biol. Chem.* **255**, 8199.
9. Poulos TL and Kraut J (1980) A hypothetical model of the cytochrome c peroxidase- cytochrome c complex *J. Biol. Chem.* **255**, 10322
10. Waldemeyer B, Bechtold R, Bosshard R and Poulos TL (1982) The cytochrome c peroxidase-cytochrome c electron transfer complex: experimental support of a hypothetical model *J. Biol. Chem.* **257**, 6073 .
11. Poulos TL, Perez M and Wagner G (1982) Preliminary crystallographic studies on cytochrome P450cam *J. Biol. Chem.* **257**, 6073 (1982).
12. Poulos TL and Mauk G (1983) Models for the complexes formed between cytochrome b5 and the subunits of hemoglobin *J. Biol. Chem.* **258**, 7369.
13. Bosshard HR, Banziger J, Haserland T and Poulos TL (1984) The cytochrome c peroxidase-cytochrome c complex: the role of histidine residues *J. Biol. Chem.* **259**, 5683.

14. Edwards SL, Poulos TL and Kraut J (1984) Crystal structure of fluoride inhibited cytochrome c peroxidase *J. Biol. Chem.* **259**, 12984.
15. Finzel BC, Poulos TL and Kraut J (1984) Crystal structure of cytochrome c peroxidase refined at 1.7Å resolution *J. Biol. Chem.* **259**, 13027.
16. Chance B, Powers L, Ching Y, Poulos TL Schonbaum GR, Yamazaki I and Paul KG (1984) X-ray absorption studies of intermediates in peroxidase activity *Arch. Biochem. and Biophysics* **235**, 596-611.
17. Poulos TL, Finzel BC, Gunsalus IC, Wagner GC and Kraut J (1985) The 2.6Å crystal structure of *Pseudomonas putida* cytochrome P450 *J. Biol. Chem.* **260**, 16122-16130.
18. Evangelista-Kirkup R, Carisanti M, Poulos TL and Spiro TG (1986) Resonance Raman spectroscopy shows different temperature dependent coordination equilibria for native horseradish and cytochrome c peroxidase *FEBS* **190**, 221-226.
19. Chance M, Powers L, Poulos TL and Chance B (1986) Cytochrome c peroxidase compound es is identical to horse radish peroxidase compound in iron ligand distance *Biochemistry* **25** 1266-1270.
20. Bryan P, Pantoliano M, Quill S, Hsiao H, and Poulos TL (1986) Site-directed mutagenesis and the role of the oxyanion hole in subtilisin *Proc. Natl. Acad. Sci. USA* **83**, 3743-3745.
21. Poulos TL, Finzel BC and Howard AJ (1986) The crystal structure of substrate free cytochrome P450cam *Biochemistry*, **25**, 5314-5322.
22. Pantoliano M, Ladner RC, Bryan PN, Rollence ML, Wood JF and Poulos TL (1987) Protein engineering of subtilisin: enhanced stabilization through the introduction of a disulfide bond *Biochemistry* **26**, 2077-2082.
23. Hazzard JT, Poulos TL and Tollin G (1987) Kinetics of reduction by free flavin semiquinones of the components of the cytochrome c -cytochrome c peroxidase complex and intramolecular electron transfer *Biochemistry* **26**, 2836-2848.
24. Bryan P, Pantoliano M, Gilliland G, Finzel BC and Poulos TL (1987) Proteases of enhanced stability: characterization of a thermostable variant of subtilisin *Proteins: Structure, Function, and Genetics* **1**, 326-341.
25. Poulos TL, Finzel BC and Howard AJ (1987) The high resolution crystal structure of cytochrome P450cam *J. Molec. Biol.* **195**, 687-700.
26. Poulos TL (1987) Heme enzyme structure and function *Advances in Inorganic Biochemistry* **7**, 1-36.
27. Poulos TL, Sheriff S and Howard AJ (1987) Cocrystals of yeast cytochrome c peroxidase and horse heart cytochrome c *J. Biol. Chem.* **262**, 13381-13384.
28. Howard AJ, Gilliland GL, Finzel BC, Poulos TL, Ohlendorf DH and Salemme FR (1987) Use of an imaging proportional counter in macromolecular crystallography *J. Appl. Crystallography* **20**,

383-387.

29. Poulos TL and Howard AJ (1987) Crystal structures of the metyrapone and phenylimidazole inhibited complexes of cytochrome P450cam *Biochemistry* **26**, 8165-8174.
30. Edwards SL, Kraut J and Poulos TL (1988) The crystal structure of nitric oxide-inhibited cytochrome c peroxidase *Biochemistry* **27**, 8074-8081.
31. Pantoliano M, Whitlow M, Wood JF, Rollence ML, Finzel BC, Gilliland GL, Poulos TL and Bryan PN (1988) The engineering of binding affinity at metal ion binding sites for the stabilization of proteins: subtilisin as a test case *Biochemistry* **27**, 8311-8317.
32. Raag R and Poulos TL (1989) The structural basis for substrate-induced changes in redox potential and spin equilibrium in cytochrome P450cam *Biochemistry* **28**, 917-922.
33. Furuya H, Shimizu T, Hirano K, Hatano M, FuSite-Directed Mutagenesis of Rat Liver Cytochrome P-450d: Catalytic Activities Toward Benzphetamine and 7-Ethoxycoumarin. H. Furuya, T. Shimizu, K. Hirano, M. Hatano, Y. Fujii-Kuriyama, R. Raag, R, and T.L. Poulos, *Biochemistry* **28**, 6848-6857 (1989).
34. Stayton PS, Poulos TL and Sligar S (1989) Putidaredoxin competitively inhibits cytochrome b5-cytochrome P-450cam association: a proposed model for a cytochrome P-450cam electron-transfer complex *Biochemistry* **28**, 8201-8205.
35. Raag R and Poulos TL (1989) Crystal structure of the carbon monoxy-substrate-cytochrome P450cam ternary complex *Biochemistry* **28**, 7586-7592.
36. Smulevich G, Wang Y, Edwards SL, Poulos TL, English AM and Spiro TG (1990) Resonance Raman spectroscopy of cytochrome c peroxidase single crystals on a variable temperature microscope stage *Biochemistry* **29**, 2586-2592.
37. Edwards SL and Poulos TL (1990) Ligand binding and structural perturbations in cytochrome c peroxidase: a crystallographic study *J. Biol. Chem.* **265**, 2588-2595.
38. Raag R, Swanson BA, Poulos TL and Ortiz de Montellano OR (1990) Formation, crystal structure, and rearrangement of cytochrome P-450cam iron-phenyl complex *Biochemistry* **29**, 8119-8126.
39. Fox T, Hazzard JT, Edwards SL, English AM, Poulos TL and Tollin G (1990) Rate of intramolecular reduction of ferryl iron in compound i of cytochrome c peroxidase *J. Amer. Chem. Soc.* **112**, 1426-1428.
40. Whitlow M, Howard AJ, Finzel BC, Poulos TL, Winborne E and Gilliland GL (1991) A metal mediated hydride shift mechanism for xylose isomerase based on the 1.6Å *Streptomyces rubiginosa* structures with xylitol and D-xylose *Proteins: Structure, Function, and Genetics* **9**, 153-173.
41. Raag R and Poulos TL (1991) Crystal structures of cytochrome P-450cam complexed with camphane, thiocamphor, and adamantane: Factors Controlling P-450 Substrate Hydroxylation *Biochemistry* **30**, 2674-2684.

42. Li H, Darwish K, Poulos TL (1991) Characterization of Recombinant B. Megaterium Cytochrome P-450BM-3 and its Two Functional Domains. *J. Biol. Chem.* **266** 11858-11865 (1991).
43. Darwish K, Li H and Poulos TL (1991) Engineering proteins, subcloning and hyperexpressing oxidoreductase genes *Protein Engineering* **4**, 701-708.
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45. Raag R, Martinis SA, Sligar SG and Poulos TL (1992) Crystal structure of the cytochrome P-450cam active site mutant Thr252Ala *Biochemistry* **30**, 11420-11429.
46. Raag R and Poulos TL (1992) Cytochrome P-450cam: crystallography, oxygen activation, and electron transfer *FASEB Journ.* **6**, 674-679 .
47. Veerapandian B, Gilliland GL, Raag R, Svensson AL, Masui Y, Hirai Y and Poulos TL (1992) Functional implications of interleukin-1b based on the three dimensional structure *Proteins:Structure, Function, Genetics.* **12**, 10-23.
48. Choudhury K, Sundaramoorthy M, Mauro JM and Poulos TL (1992) Conversion of the proximal histidine ligand to glutamine restores activity to an inactive mutant of cytochrome c peroxidase *J. Biol. Chem.* **267**, 25656-25659.
49. Edwards SL, Raag R, Wariishi H, Gold MH and Poulos TL (1993) Crystal structure of lignin peoxidase *Proc. Natl. Acad. Sci. USA* **90**, 750-754 .
50. Poulos TL, Edwards S, Wariishi H and Gold M (1993) Crystallographic refinement of lignin peroxidase at 2Å *J. Biol. Chem.* **268**, 4429-4440.
51. Raag R, Li H, Jones BC and Poulos TL (1993) Inhibitor-Induced conformational change in cytochrome P-450cam *Biochemistry* **32**, 4571-4578 .
52. Sundaramoorthy M, Kishi K, Gold M and Poulos TL (1994) Preliminary crystallographic analysis of manganese peroxidase from *Phanerochate chrysosporium*. *J. Molec. Biol.* **238**, 845-848.
53. Cupp-Vickery JR, Li H and Poulos TL (1994) Crystallization and preliminary x-ray analysis of an enzyme involved in erythromycin biosynthesis: cytochrome P450eryF *Proteins* **20**, 197-201.
54. Patterson WR and Poulos TL (1994) Characterization and crystallization of recombinant pea cytosolic ascorbate peroxidase *J. Biol. Chem.* **269**, 17020-17024.
55. DeLauder SF, Mauro JM, Poulos TL, Williams JC and Schwarz FP (1994) Thermodynamics of hydrogen cyanide and hydrogen fluoride binding to cytochrome c peroxidase and its Asn82-toAsp mutant *Biochem. J.* **302**, 437-442.
56. Li H and Poulos TL (1994) Structural variations in heme enzymes: a comparative analysis of peroxidase and P450 crystal structures *Structure* **2**, 461-464.

57. Satterlee JD, Alam SL, Mauro JM, Erman JE and Poulos TL (1994) The effect of the Asn82-->Asp Mutation in Yeast cytochrome c peroxidase studied by proton NMR spectroscopy *Eur. J. Biochem.* **224**, 81-87.
58. Choudhury K, Sundaramoorthy M, Hickman A, Yonetani T, Woehl E, Dunn MF and Poulos TL (1994) Role of the proximal ligand in peroxidase catalysis *J. Biol. Chem.* **269**, 20239-20249.
59. Govindaraj S, Li H and Poulos TL (1994) Flavin supported fatty acid hydroxylation by the heme domain of *Bacillus megaterium* cytochrome P450BM-3 *Biochem. Biophys. Res. Commun.* **203**, 1745-1749.
60. Sundaramoorthy M, Kishi K, Gold MH and Poulos TL (1994) The crystal structure of manganese peroxidase from *Phanerochaete chrysosporium* at 2.06Å resolution *J. Biol. Chem.* **269**, 32759-32767.
61. Li H and Poulos TL (1995) Modeling protein-substrate interactions in the heme domain of cytochrome P450BM-3 *Acta Crystallogr. Sect. D* **D51**, 21-32.
62. Cupp-Vickery JR and Poulos TL (1995) Structure of cytochrome P450eryF involved in erythromycin biosynthesis *Nature Structural Biology* **2**, 144-153.
63. Poulos TL, Patterson WR and Sundaramoorthy M (1995) The crystal structure of ascorbate and manganese peroxidases: the role of non-haem metal in the catalytic mechanism. *Biochem. Soc. Trans.* **23**, 228-232
64. Patterson WR and Poulos TL (1995) The crystal structure of recombinant pea cytosolic ascorbate peroxidase *Biochemistry* **34**, 4331-4341.
65. Patterson WR, Poulos TL and Goodin DB (1995) Identification of a porphyrin π -cation radical in ascorbate peroxidase compound *Biochemistry* **34**, 4342-4345.
66. Pappa HS and Poulos TL (1995) Site specific crosslinking as a method for studying intramolecular electron transfer *Biochemistry* **34**, 6573-6580.
67. Li H, Narasimhulu S, Havran LM, Winkler JD and Poulos TL (1995) Crystal structure of cytochrome P450cam complexed with its catalytic product, 5-exo-hydroxycamphor *J. Am. Chem. Soc.* **117**, 6297- 6299.
68. Govindaraj S and Poulos TL (1995) Role of the linker region connecting the reductase and heme domains in cytochrome P450BM-3 *Biochemistry* **34**, 11221-11226.
69. Sundaramoorthy M, Mauro JM, Sullivan J, Turner J and Poulos TL (1995) Preliminary crystallographic analysis of chloroperoxidase from *Caldariomyces fumago* *Acta Cryst.* **D51**, 842-844.
70. Smulevich G, Neri F, Willemsen O, Choudhury K, Marzocchi MP and Poulos TL (1995) Effect of the His175-->Glu mutation on the heme pocket architecture of cytochrome c peroxidase *Biochemistry* **34**, 13485-13490.

71. Sundaramoorthy M, Terner J and Poulos TL (1995) The crystal structure of chloroperoxidase: a heme peroxidase-cytochrome P450 functional hybrid *Structure* **3**, 1367-1377.
72. Alam ST, Satterlee JD, Mauro JM, Poulos TL and Erman JE (1995) Proton NMR studies of cytochrome c peroxidase mutant N82A: hyperfine resonance assignments, identification of two interconverting enzyme species, quantitating the rate of interconversion, and determination of equilibrium constants *Biochemistry* **34**, 15496-15503.
73. Yeom H, Sligar SG, Li H, Poulos TL and Fulco A (1995) The role of Thr268 in oxygen activation of cytochrome P540BM-3. *Biochemistry* **34**, 14733-14740.
74. Pappa H, Li H, Sundaramoorthy M, Arciero D, Hooper A and Poulos TL (1996) Crystallization and preliminary crystallographic analysis of cytochrome c553 peroxidase from *Nitrosomnas europea* *J. Struct. Biology* **16**, 429-431.
75. Schuller DJ, Ban N, van Huystee PB, McPherson A and Poulos TL (1996) The crystal structure of peanut peroxidase *Structure* **4**, 311-321.
76. Pappa H, Patterson WR and Poulos TL (1996) The homologous tryptophans critical for cytochrome c peroxidase function is not essential for ascorbate peroxidase activity. *J. Biol. Inorg. Chem.* **1**, 61-66.
77. Pappa HS, Tajbaksh S, Saunders AJ, Pielak GJ and Poulos TL (1996) Probing the cytochrome c peroxidase-cytochrome c electron transfer reaction using site specific cross-linking *Biochemistry* **35**, 4837-4845.
78. Bonagura CA, Sundaramoorthy M, Pappa HS, Patterson WR and Poulos TL (1996) An Engineered cation site in cytochrome c peroxidase alters the reactivity of the redox active tryptophan *Biochemistry* **35**, 6107-6115.
79. Cupp-Vickery JR, Han O, Hutchinson R and Poulos TL (1996) Substrate-assisted catalysis in cytochrome P450eryF *Nature Struc. Biol.* **3**, 632-637.
80. Govindaraj S and Poulos TL (1996) Probing the structure of the linker connecting the reductase and heme domains in cytochrome P450BM-3. (1996) *Protein Science* **5**, 1389-1393.
81. Poulos TL (1996) The role of the proximal ligand in heme enzymes *J.Biol. Inorg. Chem.* **1**, 356-359.
82. Li H and Poulos TL (1996) Conformational dynamics in cytochrome P450-substrate interactions. *Biochimie* **78**, 695-699.
83. Velazquez P, Cribbs DH, Poulos TL and Tenner AJ (1996) Aspartate 7 in amyloid b-protein is critical for classical complement pathway activation: Implications for Alzheimer's disease pathogenesis. *Nature Medicine* **3**, 77-79.
84. Li H, Poulos TL (1997) The structure of the cytochrome P450BM-3 haem domain complexed with the fatty acid, palmitoleic acid. *Nature Struc. Biol.* **4**, 140-146.
85. Cupp-Vickery JR and Poulos TL (1997) Structure of cytochrome P450eryF: substrate, inhibitors,

and model compounds bound in the active site. *Steroids* **62**, 112-116.

86. Hazzard JT, Govindaraj S, Poulos TL and Tollin G (1997). Electron transfer between the FMN and heme domains of cytochrome P450BM-3. *J. Biol. Chem.* **272**, 7922-7926.
87. Govindaraj S and Poulos TL (1997). The domain architecture of cytochrome P450BM-3. *J. Biol. Chem.* **272**, 7915-7921.
88. Sundaramoorthy M, Katsuyuki K, Gold M and Poulos TL (1997) Crystal structures of substrate binding site mutants of manganese peroxidase. *J. Biol. Chem.* **272**, 17574-17580.
89. Gajhede M, Schuller DJ, Henriksen A, Smith AT and Poulos TL (1997). Crystal structure of horseradish peroxidase C at 2.15Å resolution. *Nature Struc. Biol.* **4**, 1032-1038.
90. Daff SN, Chapman SK, Turner KL, Holt RA, Govindaraj S, Poulos TL and Munro AW. (1997). Redox control of the catalytic cycle of flavocytochrome P450BM-3. *Biochemistry* **36**, 13816-13823.
91. Nissum M, Neri F, Mandelman D, Poulos TL, Smulevich G. (1998). Spectroscopic characterization of recombinant pea cytosolic ascorbate peroxidase: similarities and differences with cytochrome c peroxidase. *Biochemistry* **37**, 8080-8087.
92. Schuller DJ, Wilks A, Ortiz de Montellano P, Poulos TL (1998). Crystallization of recombinant human heme oxygenase-1. *Prot. Sci.* **7**, 1836-1838.
93. Vidakovic M, Sligar SG, Li H, Poulos TL (1998). Understanding the role of the essential Aps251 in cytochrome P450cam using site-directed mutagenesis, crystallography, and kinetic solvent isotope effect. *Biochemistry* **37**, 9211-9219
94. Sundaramoorthy M, Turner J, Poulos TL (1998). Stereochemistry of chloroperoxidase active site: crystallographic and molecular-modeling studies. *Chemistry&Biology* **5**, 461-473.
95. Mandelman D, Schwarz FP, Poulos TL (1998). The role of quaternary interactions on the stability and activity of ascorbate peroxidase. *Protein Science* **7**, 2089-2098.
96. Mandelman D, Jamal J, Poulos TL. (1998). Identification of Two Electron Transfer Sites in Ascorbate Peroxidase Using Chemical Modification, Enzyme Kinetics, and Crystallography. *Biochemistry* **37**, 17610-17617.
97. Raman CS, Li H, Martasek P, Kral V, Masters BSS, Poulos TL. (1998). Crystal structure of constitutive endothelial nitric oxide synthase: a paradigm for pterin function involving a novel metal center. *Cell* **95**, 939-950.
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99. Sevrioukova IF, Li H, Zhang H, Peterson JA, Poulos TL (1999) Structure of a cytochrome P450-redox partner electron-transfer complex. *Proc. Natl. Acad. Sci. USA* **96**, 1863-1868.

100. Poulos TL, Li H, Raman CS (1999) Heme mediated oxygen activation in biology: cytochrome c oxidase and nitric oxide synthase. *Current Opin. Chem. Biol.* **3**, 131-137.
101. Bonagura CA, Sundaramoorthy M, Bhaskar B, Poulos TL (1999). The effects of an engineered cation site on the structure, activity, and EPR properties of cytochrome c peroxidase. *Biochemistry* **38**, 5538-5545.
102. Li H., Raman CS, Glaser CB, Blasko E, Young TA, Parkinson JF, Whitlow M, and Poulos TL (1999). Crystal structure of zinc-free and -bound heme domain of NOS-2 reveal structural basis for cofactor recognition. *J. Biol. Chem.* **274**, 21276-21284.
103. Schuller DJ, Wilks A, Ortiz de Montellano PR, Poulos TL (1999). Crystal structure of heme oxygenase. *Nature. Struc. Biol.* **6**, 860-867.
104. Bonagura CA, Bhaskar B, Poulos TL (1999) Conversion of an engineered potassium binding site into a calcium-selective site in cytochrome c peroxidase *J. Biol. Chem.* **274**, 37827-37833.
105. Sevrioukova IF, Hazzard JT, Tollin G, Poulos TL (1999) The FMN to heme electron transfer in cytochrome P450BM-3: effect of chemical modification of cysteines engineered at the FMN-/heme domain interaction site. *J. Biol. Chem.* **274**, 36097-36106.
106. Li H, Poulos TL (1999) Fatty acid metabolism, conformational change, and electron transfer in cytochrome P450BM3. *Biochim. Biophys. Acta* **1441**, 141-149.
107. Webster SD, Tenner AJ, Poulos TL, Cribbs DH (1999) Mouse C1q A-chain sequence alters b-amyloid-induced complement activation. *Neurobiol. of Aging* **20**, 297-304.
108. Sevrioukova IF, Immoos CE, Poulos TL, Farmer P. (2000) Electron transfer in the ruthenated heme domain of cytochrome P450BM-3. *Israel. J. Chem.* **40**, 47-53.
109. Bursley EH, Poulos TL (2000) Two substrate binding sites in ascorbate peroxidase: The role of arginine 172. *Biochemistry* **39**, 7374-7379.
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112. Liu Y, Lightning LK, Huang H-w, Moenne-Loccoz P, Schuller DJ, Poulos TL, Loehr TM, Ortiz de Montellano PR (2000) Replacement of the distal Gly139 transforms human heme oxygenase-1 into a peroxidase. *J. Biol. Chem.* **275**, 34501-34507.
113. Li H, Raman CS, Martasek P, Kral V, Masters BSS, Poulos TL (2000) Mapping the active site polarity in structures of endothelial nitric oxide synthase heme domain complexed with isothioureas. *J. Inorg. Biochem.* **81**, 133-139.
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