

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Phani Raj Pokkuluri		POSITION TITLE	
eRA COMMONS USER NAME PHANIP		Biophysicist	
EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i>)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Nagarjuna University, India Mathematics and Physics (ancillaries)	B.Sc.	1982	Chemistry
Indian Institute of Technology, Kanpur, India	M.Sc.	1984	Chemistry
University of British Columbia, Vancouver, Canada	M.Sc.	1987	Chemistry
University of British Columbia, Vancouver, Canada	Ph.D.	1991	Chemistry

A. Positions and Honors**Positions and Employment**

- 1985-1990 Teaching Assistant, University of British Columbia, Vancouver, Canada
 1991-1993 Research Associate position at National Research Council's Biotechnology Research Institute, Montreal, Canada
 1994-1999 Post doctoral research fellow at Argonne National Laboratory, Argonne, IL
 1999-2004 Assistant Biophysicist, Argonne National Laboratory, Argonne, IL
 2004-Present Biophysicist, Argonne National Laboratory, Argonne, IL

B. Selected peer-reviewed publication

- Phaniraj, P., A.K. Mishra, S.K. Dogra. Absorption and Fluorescence Spectra of 7-Aminoindazole: Study of Solvent & pH Dependences. *Indian J. Chem.*, **24A**, 913-917 (1985).
 Phaniraj, P., M. Krishnamurthy, S.K. Dogra. Absorption and Fluorescence Spectra of p- (Imidazol-1-yl) phenol. Study of Solvent Dependence & Determination of Acidity Constants. *Indian J. Chem.*, **25A**, 513-516 (1986).
 Phaniraj, P., H.K. Sinha, S.K. Dogra. Ionization Equilibria and Electronic Spectroscopy of 5-Hydroxy indole-2--1 -carboxylic acid. *J. Photochem.* **34**, 209-218 (1986).
 Krishnamurthy, M., P. Phaniraj, S.K. Dogra. Absorptiometric and Fluorimetric Study of Solvent Dependence and Prototropism of Benzimidazole Homologues. *J. Chem. Soc. Perkin Trans.* **2**, 1917-1925 (1986).
 Pokkuluri, P.R., J.R. Scheffer, J. Trotter. Surface Versus Bulk Reactivity in Solid State Organic Chemistry. *Tetrahedron Lett.*, **30**, 1601-1604 (1989).
 Pokkuluri, P.R., J.R. Scheffer, J. Trotter. Novel Photorearrangements of Bridgehead-Substituted Dibenzobarrelene Derivatives in Solution and the Solid State. *J. Am. Chem. Soc.*, **112**, 3676-3677 (1990).
 Chen, J., P.R. Pokkuluri, J.R. Scheffer, J. Trotter. Absolute Asymmetric Induction Differences in Dual Pathway Photoreactions. *Tetrahedron Lett.*, **31**, 6803-6806 (1990).
 Chen, J., P.R. Pokkuluri, J.R. Scheffer, J. Trotter. The Novel Solid State and Solution Phase Photochemistry of Dimethyl 9-chloromethyl-9,10- dihydro-9,10-ethenoanthracene-11,12-dicarboxylate. *J. Photochem. Photobiol. A: Chem.*, **57**, 21-26 (1991).
 Scheffer, J.R., P.R. Pokkuluri. Review: Unimolecular Photoreactions of Organic Crystals. The Medium is the Message, in *Photochemistry in Organized & Constrained Media*, Ed. V. Ramamurthy, VCH publishers, NY, (1991), pp 185-246.

- Pokkuluri, P.R., J.R. Scheffer, J. Trotter, M. Yap. Selective Solid State Photorearrangement through the Less Stable of Two Possible Biradical Intermediates, *J. Org. Chem.*, **57**, 1486-1494 (1992).
- Chen, J., P.R. Pokkuluri, J.R. Scheffer, J. Trotter. Control of Regioselectivity Through Relief of Steric Crowding in the Di-pi-Methane Photorearrangement of 9,10-ethenoanthracene Derivatives. *Tetrahedron Lett.*, **33**, 1535-1538 (1992).
- Pokkuluri, P.R., J.R. Scheffer, J. Trotter. Crystal Structure Correlations in the Photochemistry of Dimethyl 9,10-dimethyl-9,10-dihydro-9,10-ethenoanthracene-11,12-dicarboxylate. *Acta Cryst.*, **B49**, 107-116 (1993).
- Pokkuluri, P.R., J.R. Scheffer, J. Trotter. Crystal Structure Correlations in the Photochemistry of Dimethyl 9-Phenyl-9,10-dihydro-9,10-ethenoanthracene-11,12-dicarboxylate. *Acta Cryst.*, **B49**, 754-760 (1993).
- Chen, J., P.R. Pokkuluri, J.R. Scheffer, J. Trotter. Crystal Structure Correlations in the Photochemistry of Dimethyl 9 Chloromethyl-9,10-dihydro-9,10-ethenoanthracene-11,12-dicarboxylate. *Acta Cryst.*, **B49**, 905-909 (1993).
- Pokkuluri, P.R., J.R. Scheffer, J. Trotter. Cyclooctatetraene Formation in the Photolyses of Dibenzobarrelene Diesters. *Acta Cryst.*, **B49**, 1049-1052 (1993).
- Pokkuluri, P.R. and J. Trotter. Structure of Dimethyl 9-Methyl-9,10-dihydro-9,10-ethenoanthracene-11,12-dicarboxylate. *Acta Cryst.*, **C49**, 971-973 (1993).
- Pokkuluri, P.R., J.R. Scheffer, J. Trotter. Crystal Structure and Photochemistry of Dimethyl 9,10-Dichloro-9,10-dihydro-9,10-ethenoanthracene-11,12-dicarboxylate, *Acta Cryst.*, **C49**, 2014-2018 (1993).
- Chen, J., P.R. Pokkuluri, J.R. Scheffer, J. Trotter. Structure of Dimethyl 9-Formyl-9,10-dihydro-9,10-ethenoanthracene-11,12-dicarboxylate. *Acta Cryst.*, **C49**, 2018-2019 (1993).
- Pokkuluri, P.R., J. Trotter. Dimethyl 9-[(S)-(-)-N-Acetylalanyloxy]methyl-9,10-dihydro-9,10-ethenoanthracene-11,12-dicarboxylate. *Acta Cryst.*, **C50**, 276-278 (1994).
- Pokkuluri, P.R., J. Trotter. Structure of a Cyclopropapentalene Photolysis Product of a Dibenzobarrelene Ester Lactone. *Acta Cryst.*, **C50**, 281-283 (1994).
- Pokkuluri, P.R., J.R. Scheffer, J. Trotter. Dimethyl 9-Phenyl-1,4-dihydro-1,4-ethenoanthracene-11,12-dicarboxylate. *Acta Cryst.*, **C50**, 415-417 (1994).
- Chen, J., P.R. Pokkuluri, J.R. Scheffer, J. Trotter. 12-Methyl-9-Hydroxymethyl-9,10-dihydro-9,10-ethenoanthracene-11,12-dicarboxylate Lactone. *Acta Cryst.*, **C50**, 576-578 (1994).
- Pokkuluri, P.R., J.R. Scheffer, J. Trotter, M. Yap. An Ethenonaphthalene and one of its Photolysis Products. *Acta Cryst.*, **C50**, 578-581 (1994).
- Pokkuluri, P.R., J.R. Scheffer, J. Trotter. The Photolysis Product of Dimethyl 9,10-Diphenyl-1,4-dihydro-1,4-ethenoanthracene-11,12-dicarboxylate. *Acta Cryst.*, **C50**, 581-583 (1994).
- Pokkuluri, P.R., J.R. Scheffer, J. Trotter. 2-Propyl 12-carboxy-9,10-dihydro-9,10-ethenoanthracene-11-carboxylate. *Acta Cryst.*, **C50**, 922-924 (1994).
- Pokkuluri, P.R., F. Bouthillier, Y. Li, A. Kuderova, J. Lee, M. Cygler. Preparation, Characterization of an Antibody Fab Fragment that Recognizes RNA: Crystal Structures of Native Fab and Three Fab-Mononucleotide Complexes. *J. Mol. Biol.*, **243**, 283-297 (1994).
- Rajagopalan, K., G. Pavlinkova, S. Levy, P.R. Pokkuluri, M. Schiffer, B.E. Haley, H. Kohler. Novel Unconventional Binding Site in the Variable Region of Immunoglobulins. *Proc. Natl. Acad. Sci. U.S.A.* **93**, 6019-6024 (1996).
- Pokkuluri, P.R., D-B. Huang, R. Raffin, X. Cai, G. Johnson, P. Wilkins Stevens, F.J. Stevens, M. Schiffer. A Domain Flip as a Result of a Single Amino-acid Substitution. *Structure*, **6**, 1067-1073 (1998).
- Raffin, R., L. Dieckman, M. Szpunar, C. Wunschl, P.R. Pokkuluri, P. Dave, P. Wilkins Stevens, M. Schiffer, F.J. Stevens. Physicochemical Consequences of Amino Acid Variations that Contribute to Fibril Formation by Immunoglobulin Light Chains. *Prot. Sci.*, **8**, 509-517 (1998).
- Pokkuluri, P.R., A. Solomon, D.T. Weiss, F.J. Stevens, M. Schiffer. Tertiary structure of human λ 6 light chains. *Amyloid* **6**, 165-171 (1999).
- Pokkuluri, P.R., X. Cai, F.J. Stevens, and M. Schiffer. Change in Dimerization Mode by Removal of a Single Unsatisfied Polar Residue Located at the Interface. *Prot. Sci.* **9**, 1852-1855 (2000).
- Stevens, F.J., P.R. Pokkuluri, and M. Schiffer. Protein Conformation and Disease: Pathological Consequences of Analogous Mutations in Homologous Proteins. *Biochemistry* **39**, 15291-15296 (2000).

- Pokkuluri, P.R., R.Raffen, L. Dieckman, C. Boogaard, F.J. Stevens, and M. Schiffer. Increasing protein stability by polar surface residues domain-wide consequences of interactions within a loop. *Biophysical J.* **82**:391-398 (2002).
- Pokkuluri, P.R., P.D. Laible, Y.-L. Deng, T.N. Wong, D.K. Hanson, and M. Schiffer. The structure of a mutant photosynthetic reaction center shows unexpected changes in main chain orientations and quinone position. *Biochemistry* **41**, 5998-6007 (2002).
- Londer, Y.Y., P.R. Pokkuluri, D.M. Tiede, and M. Schiffer. Production and preliminary characterization of a recombinant triheme cytochrome *c7* from *Geobacter sulfurreducens* in *Escherichia coli*. *Biochimica et Biophysica Acta Bioenergetics* **1554**, 202-211 (2002).
- Pokkuluri, P.R., M. Gu, X. Cai, R. Raffen, F.J. Stevens, and M. Schiffer. Factors contributing to decreased protein stability when aspartic acid residues are in β -sheet regions. *Protein Science*, **11**: 1687-1694 (2002).
- Pokkuluri, P.R., Y.Y.Londer, N.Duke, W.C.Long, M. Schiffer. Family of cytochrome *c7*-type proteins from *Geobacter sulfurreducens*: The structure of one cytochrome *c7* at 1.45 Å resolution. *Biochemistry*, **43**, 849-859 (2004).
- Pokkuluri, P.R., P.D. Laible, A.E. Crawford, J.F. Mayfield, M.A. Yousef, S.L. Ginell, D.K. Hanson, and M. Schiffer. Temperature and cryoprotectant influence secondary quinone binding position in bacterial reaction centers. *FEBS Lett.* **570**:171-4 (2004).
- Pokkuluri, P.R., Y.Y. Londer, N. Duke, J. Erickson, M. Pessanha, C.A. Salgueiro, and M. Schiffer. Structure of a novel *c7*-type three-heme cytochrome domain from a multidomain cytochrome *c* polymer. *Protein Science*, **13**:1684-92 (2004).
- Londer, Y.Y., P.R.Pokkuluri, M.Schiffer. Functional expression of multiheme cytochromes *c* in *E. coli*, *PharmaGenomics* **4**; 24 – 30 (2004).
- Pessanha, M., Y.Y.Londer, W.C.Long, J.Erickson, P.R.Pokkuluri, M.Schiffer, C.A.Salgueiro. Redox characterization of *Geobacter sulfurreducens* cytochrome *c7*: Physiological relevance of the conserved residue F15 probed by site-specific mutagenesis. *Biochemistry*, **43**; 9909 – 9917 (2004).
- Y. Y.Londer, P.R.Pokkuluri, J.Erickson, V.Orshonsky, M.Schiffer (2005). Heterologous expression of hexaheme fragments of a multidomain cytochrome from *Geobacter sulfurreducens* representing a novel class of cytochromes *c*. *Protein Express. Purifi.* **39**, 254-260.
- P.R.Pokkuluri, D.K.Hanson, P.D.Laible, S.L.Ginell, G.Johnson, M.Schiffer (2005). Structural descriptions of compensatory mutations that restore proton transfer pathways to the L212Ala-L213Ala mutant bacterial reaction center. In *Photosynthesis: Fundamental Aspects to Global Perspectives*, Eds. A. van der Est and D. Bruce, Alliance Communications Group, Lawrence, Kansas (2005) pp 272-274.
- Y. Y.Londer, P. R.Pokkuluri, V.Orshonsky, L.Orshonsky, M.Schiffer (2006). Heterologous expression of dodecaheme "nanowire" cytochromes *c* from *Geobacter sulfurreducens*. *Protein Express. Purifi.* **47**, 241-248 (2006).
- Y.Y.Londer, I. S. Dementieva, C. A. D'Ausilio, P. R. Pokkuluri, and M. Schiffer (2006). Characterization of a *c*-type heme containing PAS sensor domain from *Geobacter sulfurreducens* representing a novel family of periplasmic sensors in *Geobacteraceae* and other bacteria. *FEMS Microbiol. Lett.* **258**, 173-181 (2006).
- M. Pessanha, L. Morgado, R.O.Louro, Y.Y.Londer, P.R.Pokkuluri, M.Schiffer, C.A.Salgueiro. Thermodynamic characterization of triheme cytochrome PpcA from *Geobacter sulfurreducens*: evidence for a role played in e^-/H^+ energy transduction. *Biochemistry*, **45**, 13910-13917 (2006).
- L. Morgado, M. Bruix, Y.Y.Londer, P.R.Pokkuluri, M.Schiffer, C.A.Salgueiro. Redox-linked conformational changes of a multiheme cytochrome from *Geobacter sulfurreducens*. *Biochem. Biophys. Res. Commun.* **360**, 194-198 (2007).
- P.R. Pokkuluri, M. Pessanha, Y.Y. Londer, S.J. Wood, N.E.C. Duke, R. Wilton, T. Catarino, C.A. Salgueiro, M. Schiffer. Structures and Solution Properties of Two Novel Periplasmic Sensor Domains with *c*-Type Heme from Chemotaxis Proteins of *Geobacter sulfurreducens*: Implications for Signal Transduction. *J. Mol. Biol.* **377**, 1498-1517 (2008).
- S. J. Wood, X.-L. Li, M. A. Cotta, P. Biely, N. E. C. Duke, M. Schiffer and P. R. Pokkuluri. Crystallization and preliminary X-ray diffraction analysis of the glucuronoyl esterase catalytic domain from *Hypocrea jecorina*. *Acta Cryst.* **F64**, 255-257(2008).

Principal Investigator/Program Director (Last, First, Middle):

L. Morgado, M. Bruix, V. Orshonsky, Y. Y. Londer, N. E.C. Duke X. Yang, P.R. Pokkuluri, M. Schiffer, C.A. Salgueiro. Structural insights into the modulation of the redox properties of two *Geobacter sulfurreducens* homologous triheme cytochromes. *Biochim. Biophys. Acta. Bioenergetics*, in press (2008).