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## EDUCATION

- 9/06–1/12 **New York University**, Department of Chemistry, New York, N.Y.  
Ph.D. in Biomolecular Chemistry, January 2012 in Kent Kirshenbaum Lab.  
  
Thesis: Conformational Ordering in Peptidomimetic Oligomers *via* Covalent and Noncovalent Strategies
- 9/03–5/06 **Indian Institute of Science**, Department of Organic Chemistry, Bangalore, India.  
M.S. in Organic Chemistry, August 2006  
  
Thesis: Dimeric Lipids Based on Aromatic Backbone: Synthesis, Characterization, Membrane Formation and Preliminary Biophysical Studies
- 9/00–5/03 **University of Calcutta**, Kolkata, India.  
B.S. in Chemistry, August 2003

## POSITIONS AND EMPLOYMENT

- 01/16–Present UGC-Assistant Professor, Bangalore University, DOS in Chemistry, Bangalore
- 07/14–08/14 Instructor in Medicine, Harvard Medical School, and Associate Biologist, Brigham Women's Hospital, Division in Renal Medicine, Boston, M.A.  
  
Crafting amino acid motifs for identifying "super reactive" cysteines in the context of Antibody Drug Conjugates.
- 02/12–06/14 Postdoctoral Research Fellow, University of Michigan, Department of Chemistry, Ann Arbor, M.I.  
  
Mechanistic Studies on Aldehyde decarbonylase implication in biofuel research and design of three-dimensional assemblies with proteins as scaffolds.
- 09/06–1/12 McCracken Graduate Research Fellow, New York University, Department of Chemistry, New York, N.Y.

Pharmacophoric development of peptide mimetics that display intelligent design of spatially specific three dimensional structures.

- 09/08–1/12 Adjunct Instructor of College Chemistry, New York University, Department of Chemistry, New York, N.Y.
- 09/06–05/08 Graduate Teaching Assistant, New York University, Department of Chemistry, New York, N.Y.
- 09/04–07/06 Graduate Research Associate, Indian Institute of Science, Department of Organic Chemistry, Bangalore, India.

## FELLOWSHIPS AND SCHOLARSHIPS

- 2011 Horizon Fellowship in the Natural and Physical Science, NYU
- 2006 MacCracken Fellowship, New York University
- 2005 Council for Scientific and Industrial Research, Junior Research Fellowship
- 2003 Indian Ministry of Human Resource Development Fellowship for the Sciences

## HONORS AND AWARDS

- 2013 INSPIRE Faculty Fellowship and Grant Award (declined)
- 2008 New York University, Graduate School of Arts and Sciences Travel Grant
- 2007 New York University, Department of Chemistry Travel Grant
- 2004 The Mira Memorial Gold Medal as Best Chemistry Student of 2004
- 1999 Merit Certificate in National Mathematics Olympiad Contest

## RESEARCH EXPERIENCE

- July'14–August'15 **Instructor in Medicine**, Prof. Joseph Bonventre/Dr. Amit Choudhary, Renal Division, Department of Medicine, Brigham Women Hospital.
- Feb '12–June'14 **Postdoctoral Research**, Prof. E. Neil Marsh, Department of Chemistry, University of Michigan. **Enzyme Mechanism/Biofuels** research toward (1) designing substrate analogs for aldehyde decarbonylase (AD) for mechanistic investigations. This project involved (A) solution phase synthesis of novel substrate analogs for AD; (B) Chemical characterization via mass spectral analysis including Gas Chromatography (GC-MS); (C) Structure determination via Nuclear Magnetic Resonance (NMR). (D) Cell culture work, protein expression and purification. (D) Gel electrophoresis. (E) Ion-mobility Mass Spectral studies.
- Sept '06–Jan '12 **Graduate Research**, Prof. Kent Kirshenbaum, Department of Chemistry, New York University. **Peptide Chemistry/ Peptide Mimetics** research directed toward (1) Generation of biocompatible synthetic oligomers that exhibit novel secondary structures; (2) Introduction of chirality in sequence-specific achiral oligomers through atropisomerism; (3) Novel Alzheimer's Disease therapy using peptides and peptide-peptoid hybrids as inhibitors for antagonizing apoE/A $\beta$  interaction. These projects involved (A) Solution and solid phase synthesis of novel peptides, peptide-peptoid hybrids, peptoids; (B) Chemical characterization via high performance liquid chromatography (HPLC) and mass spectral

analysis; (C) Structure determination via circular dichroism, Nuclear Magnetic Resonance (NMR) and X-ray crystallography.

Sept'04–Aug'06 **Summer research and Master's thesis work**, Prof. Santanu Bhattacharya, Department of Organic Chemistry, Indian Institute of Science, Bangalore, India. **Chemical Biology Research** of lipids directed toward the synthesis of novel transfection reagents. This work involved (1) Chemical synthesis of dimeric transfection reagents based on aromatic and pseudo-glycerol backbone; (2) Characterization via NMR and mass spectral analysis; (3) Fluorescence assay for determining DNA binding.

## TEACHING EXPERIENCE

- 09/11–1/12 Adjunct Instructor, Department of Chemistry, New York University, New York, N.Y. Organic Chemistry I. Introduction to Modern Chemistry.
- 09/08–10/01 Adjunct Instructor, Department of Chemistry, New York University, New York, N.Y. Natural Science I & II, General Chemistry II, Organic Chemistry II.
- 09/06–08/08 Graduate Teaching Fellow, Department of Chemistry, New York, N.Y. Introductory Chemistry I & II.

## PUBLICATIONS

1. Ellington, B.; **Paul, B.**; Das, D.; Zimmerman, P.; Marsh, E.N.G.; An Unusual Iron-Dependent Oxidative Deformylation Reaction Providing Insights into Hydrocarbon Biosynthesis in Nature, *ACS catalysis*, **2016**, 6, 3293-3300.
2. Chatterjee, S.; Butterfoss, G. L.; Mandal, M.; Bonneau, R.; **Paul, B.** and Jaisankar, P.; Experimental Studies and Computational Analysis Racemization barriers of atropisomeric 3,3'-bipyrrroles: An experimental study and its theoretical Verification; Manuscript under review in *RSC advance*.
3. Buer, B.; **Paul, B.**; Das, D.; Stucky, J.; Marsh, E.N.G.; Insights into Substrate and Metal Binding from the Crystal Structure of Cyanobacterial Aldehyde Deformylating Oxygenase with Substrate Bound, *ACS Chem. Biol.*, **2014**, 9, 2584-2593.
4. Das, D.; Ellington, B.; **Paul, B.**; Marsh, E.N.G.; Mechanistic Insights from reaction of  $\alpha$ -Oxiranyl-Aldehydes with Cyanobacterial Aldehyde Deformylating Oxygenase, *ACS Chem. Biol.* **2014**, 9, 570-577.
5. **Paul, B.**; Das, D.; Ellington, B.; Marsh, E.N.G.; Probing the Mechanism of Cyanobacterial Aldehyde Decarbonylase Using a Cyclopropyl Aldehyde *J. Am. Chem. Soc.* **2013**, 135, 5234-5237.
6. **Paul, B.**; Butterfoss, G.; Boswell, M. G.; Huang, Mia.L.; Wolf, C.; Bonneau, R.; Kirshenbaum, K.; *N*-Naphthyl Peptoid Foldamers Exhibiting Atropisomerism, *Org. Lett.* **2012**, 14, 926-929.
7. **Paul, B.**; Butterfoss, G.; Renfrew, D.; Boswell, M. G.; Yeung, F. G.; Shah, N. H.; Wolf, C.; Bonneau, R.; Kirshenbaum, K.; Peptoid Atropisomers, *J. Am. Chem. Soc.* **2011**, 133, 10910-10919.

8. Jordan, P. A.; **Paul, B.**; Butterfoss, G. L.; Renfrew, P. D.; Bonneau, R.; Kirshenbaum, K.; Oligo (N-alkoxy glycines):Trans substantiating peptoid conformations. *Biopolymers Peptide Science* **2011**, *96*, 617-626.
9. Bajaj A.; **Paul B.**; Indi S. S.; Pataru K., and Bhattacharya, S.; Structure-Activity investigation on the gene transfection properties of cardiolipin mimicking gemini lipid analogues. *Bioconjugate Chem.* **2008**, *19*, 1283-1300.
10. Bajaj A.; **Paul B.**; Indi S. S.; Pataru K. and Bhattacharya, S.; Effect of the hydrocarbon chain and polymethylene spacer lengths on gene transfection efficacies of gemini lipids based on aromatic backbone. *Bioconjugate Chem.* **2007**, *18*, 2144-2158.
11. **Paul, B.**; Bajaj A.; Indi S. S. and Bhattacharya, S.; Synthesis of novel dimeric cationic lipids based on aromatic backbone between hydrocarbon chains and headgroup. *Tet. Lett.* **2006**, *47*, 8401-8405.