ACADEMIC PROFILE/ CV

Personal Details:

1. **Full name:** Dr. Subhas Samanta
2. **Designation:** Assistant Professor
3. **Date of birth:** 02.12.1979
4. **Date of Joining:** 22.02.2016
5. **Phone number:** +91-9732730595
6. ***E*-Mail**: subhastp@gmail.com; sschem@caluniv.ac.in
7. **Specialization:** Organic Chemistry
8. **Major Thrust Areas:** Photochemistry, Bio-organic & Medicinal Chemistry, Organic Synthesis

Academic Credentials:

- *Assistant Professor (Feb.2016-Till date): Calcutta University, Kolkata, India*
- *Postdoc (Apr.2013-Dec.2015): University of Pittsburgh, Pennsylvania, USA (with Prof. Alexander Deiters)*
- *Postdoc (Oct.2009-Jan.2013): University of Toronto, Toronto, Canada (with Prof. Andrew Woolley)*
- *Ph.D. (Aug.2003-Aug.2009): Indian Institute of Technology Kanpur (IITK), Kanpur, India*
- *M.Sc. (2000-2002): Calcutta University (Presidency College, Calcutta, India*

Teaching:

1. Pericyclic Reactions (CHEM-G12)
2. Heterocyclic Chemistry (I-III, CHEM-G22 & CHEM-SO41)
3. Advanced Organic Synthesis (CHEM-SO43)

Research Interest:

- Light-active small molecules and their applications in biological and material sciences
- Small molecule inhibitors of microRNA
- Organic synthesis

Extramural Research Grants Received:

- ❖ 2017-2019 UGC Start-Up Grant (10 lakhs)
- ❖ 2017-2018 UGC UPE II (4.5 lakhs)
- ❖ 2018-2021 DST-SERB (52 lakhs)

Research Experience:

- Apr, 2013 to Jan, 2016: Postdoctoral research fellow at the University of Pittsburgh, Pennsylvania, USA, Major Topic of Research: Genetical encoding of unnatural amino acids into proteins and microRNA-21 inhibitors for cancer therapeutic development
- Oct, 2009 to Jan, 2013: Postdoctoral research scholar at the University of Toronto, Toronto, Canada, Major Topic of Research: Photoswitchable small molecules to reversibly control peptide and protein structures
- Aug, 2003 to Aug, 2009: PhD. at the Indian Institute of Technology Kanpur, Kanpur, India, Supervisor: Prof. J. N. Moorthy, Major Topic of Research: Synthetic and mechanistic photochemistry and photochromism

Research Publications:

1) "Reversible and Tunable Photoswitching of Protein Function through Genetic Encoding of Azobenzene Amino Acids in Mammalian Cells"- Luo, J.; Samanta, S.; Convertino, M.; Dokholyan, N., V.; Deiters, A. ***ChemBioChem*** **2018**, *19*, 2178-2185.
2) "Genetic Code Expansion in Zebrafish Embryos and Its Application to Optical Control of Cell Signaling"- Liu, J.; Hemphill, J.; **Samanta, S**.; Tsang, M.; Deiters, A. ***J. Am. Chem. Soc***. **2017**, *139*, 9100-9103.
3) "Optical Control of DNA Helicase Function through Genetic Code Expansion" - Luo, J.; Kong, M.; Liu, L.; **Samanta, S**.; Houten, B. V.; Deiters, A. ***ChemBioChem*** **2017**, *18*, 466–469.
4) "Red-Shifting Azobenzene Photoswitches for in Vivo Use"- Dong M, Babalhavaeji A, **Samanta S**, Beharry AA, Woolley GA. ***Acc. Chem. Res***. **2015**, *10*, 2662-70.
5) "Conditional Control of Alternative Splicing Through Light-Triggered Splice-Switching Oligonucleotides"- Hemphill, J; Liu, Q; Uprety, R; **Samanta, S**; Tsang, M; Juliano, R; Deiters, A. ***J. Am. Chem. Soc.*** **2015**, *137*, 3656-3662.
6) "Light-cleavable Q1 rapamycin dimer as an optical trigger for protein dimerization"- Brown, K., A.; Zou, Y.; Shirvanyants, D.; Zhang, J.; **Samanta, S**.; Mantravadi, P., K.; Dokholyanc, N., V.; Deiters, A. D. ***Chem. Commun***. **2015**, *51*, 5702-5705.
7) "Genetic Encoding of Caged Cysteine and Caged Homocysteine in Bacterial and Mammalian Cells"- Uprety, R.; Luo, J.; Liu, J.; Naro, Y.; **Samanta**, **S**.; Deiters, A. ***ChemBioChem*** **2014**, *15*, 1793-1799.
8) "Excited-state properties of fluorenones: influence of substituents, solvent and macrocyclic encapsulation"- Moorthy, J. N.; Ghosh, I.; Mukhopadhyay, A.; Koner, A. L.; **Samanta S**.; Nau, W. M., ***Phys. Chem. Chem. Phys***. **2014**, *16*, 16436-16445.
9) "Photoswitching of ortho-Substituted Azonium Ions by Red Light in Whole Blood"- **Samanta**, **S**.; Babalhavaeji, A.; Dong, M., X.; Woolley, G., A. ***Angew. Chem. Int. Ed*****.** **2013**, *52*, 14127-14130.
10) "Robust visible light photoswitching with ortho-thiol substituted azobenzenes"- **Samanta**, **S**.; McCormick, T., M.; Schmidt, S., K..; Seferos, D., S.; Woolley, G., A. ***Chem. Commun***. **2013**, *49*, 10314-10316.
11) "Self-Assembly of Conformationally Rigid Dialcohols (Bis-Benzocyclobutenols): Supramolecular Cyclophanes and Arrays"- Bajpai, A.; Venkatakrishnan, P.; Mandal, S.; **Samanta, S**.; Venugopalan, P.; Moorthy, J., N. ***Cryst. Growth Des***. **2013**, *13*, 4714−4720.
12) "Photoswitching azo compounds in vivo with red light"- **Samanta**, **S**.; Beharry, A. A.; Sadovski, O; McCormick, T. M.; Babalhavaeji, A.; Tropepe, V.; Woolley, G. A. ***J. Am. Chem. Soc.*** **2013**, *135,* 9777−9784. ***(Highlighted in "Nature Chemical Biology* 2013, *9,* 469," *as "Ready for red")***
13) "Helicity as a steric force: stabilization and helicity-dependent reversion of colored o-quinonoid intermediates of helical chromenes"- Moorthy, J. N.; Mandal, S.; Mukhopadhyay, A; **Samanta**, **S**. ***J Am. Chem. Soc***. **2013**, *135*, 6872−6884.
14) "A bis-azobenzene cross-linker that isomerizes with visible light"- **Samanta**, **S**.; Qureshi, H. I.*;* Woolley, G. A. ***Beilstein J. Org. Chem.*** **2012***, 8,* 2184–2190.
15) "Quantitative analysis of the effects of photoswitchable distance constraints on the structure of a globular protein"- Beharry, A. A.; Chen, T.; Sameer Al-Abdul-Wahid, M.; **Samanta**, **S**.; Davidov, K.; Sadovski, O.; Ali, A. M.; Chen, S. B.; Prosser, R. S.; Chan, H. S.; Woolley, G. A. ***Biochemistry***, **2012**, 51 (32), 6421–6431.
16) "Bidirectional Photocontrol of Peptide Conformation with a Bridged Azobenzene Derivative"- **Samanta**, **S**.; Qin, C.; Lough, A. J; Woolley, G. A. ***Angew. Chem. Int. Ed*****.** **2012**, *51*, 6452–6455.

(*Chosen as a "Hot Paper" by the Editors for its importance)*.

17) "Reversible photo-control of peptide conformation with a rhodopsin-like photoswitch"- Blanco-Lomas, M[†].; **Samanta**, **S**[†].; Campos, P. J.; Woolley, G. A.; Sampedro, D. *([†]**Equal contribution to this work)*** ***J. Am. Chem. Soc.*** **2012**, *134,* 6960−6963.
18) "Bis-Azobenzene Crosslinkers for Photocontrol of Peptide Structure"- **Samanta**, **S**.; Woolley, G. A. ***ChemBioChem*** **2011**, *12*, 1712–1723.
19) "Influence of (2,3,4,5,6-Pentamethyl/phenyl)phenyl Scaffold: Stereoelectronic Control of the Persistence of o-Quinonoid Reactive Intermediates of Photochromic Chromenes"- Mandal, S.; Parida, K. N.; **Samanta**, **S**.; Moorthy, J. N. ***J. Org. Chem.*** **2011**, *76*, 7406-7414.
20) "Steady-state photochemistry (Pschorr cyclization) and nanosecond transient absorption spectroscopy of twisted 2-bromoaryl ketones"- Moorthy, J. N.; **Samanta**, **S**.; Koner, A. L.; Nau, W. M. ***Pure and Appl. Chem.*** **2011**, *83,* 841–860.
21) "A collection of caged compounds for probing roles of local translation in neurobiology"- Sadovski, O.; Jaikaran, A. S. I.; **Samanta**, **S**.; Fabian, M. R.; Dowling, R. J. O.; Sonenberg, N.; Woolley, G. A. ***Bioorg. Med. Chem.*** **2010**, *18*, 7746–7752.
22) "Modulation of Spectrokinetic Properties of *o*-Quinonoid Reactive Intermediates by Electronic Factors: Time-Resolved Laser Flash and Steady-State Photolysis Investigations of Photochromic 6- and 7-Arylchromenes"- Moorthy, J. N.; Koner, A. L.; **Samanta**, **S**.; Roy, A.; Nau, W. M. ***Chem.-Eur. J.*** **2009**, *15*, 4289-4300.
23) "Intramolecular O-H· ·O Hydrogen-Bond-Mediated Reversal In the Partitioning of Conformationally Restricted Triplet 1,4-Biradicals and Amplification of Diastereodifferentiation in Their Lifetimes"- Moorthy, J. N.; **Samanta**, **S**.; Koner, A. L.; Saha, S.; Nau, W. M. ***J. Am. Chem. Soc.*** **2008**, *130*, 13608-13617.
24) "Photoinduced C-Br Homolysis of 2-Bromobenzophenones and Pschorr Ring Closure of 2-Aroylaryl Radicals to Fluorenones"- Moorthy, J. N.; **Samanta**. **S**. ***J. Org. Chem.*** **2007**, *72*, 9786-9789.
25) "Photochromism of Arylchromenes: Remarkable modification of Absorption Properties and Lifetimes of o-Quinonoid Intermediates" - Moorthy, J. N.; Venkatakrishnan, P.; **Samanta**, **S**.; Kumar, D. K. ***Org. Lett.*** **2007**, *9*, 919-922.
26) "Novel Photochromism of Differently-linked Bis-benzopyrans"- Moorthy, J. N.; Venkatakrishnan, P.; **Samanta**, **S**. ***Org. Biomol. Chem*****. 2007**, *5*, 1354-1357.
27) "Photochemistry of Dicarbonyl-Substituted Benzenes: Influence of Steric and Electronic Factors in the Cyclization and Diels-Alder Trapping Reactions of Photoenols"- Moorthy, J. N.; **Samanta**. **S**. ***ARKIVOC*** (Gainesville, FL, U.S.) **2007**, *8*, 324-340.
28) "Diastereomer-Differentiating Photochemistry-Control of Reactivity of Triplet 1,4-Diradicals Derived from Norrish Type II Reactions"- Moorthy, J. N.; Singhal, N.; **Samanta**, **S**. **ISRAPS *Bulletin*. 2006**, *18*, 45-51.
29) "Diastereomeric Discrimination in the Lifetimes of Norrish Type II Triplet 1,4-Biradicals and Stereocontrolled Partitioning of Their Reactivity (Yang Cyclization versus Type II Fragmentation)"- Moorthy, J. N.; Koner, A. L.; **Samanta**, **S**.; Singhal, N.; Nau, W. M.; Weiss, R. G. ***Chem.-Eur. J.*** **2006**, *12*, 8744-8749.
30) "ß- Phenyl Quenching of Triplet Excited Ketones: How Critical is the Geometry for Deactivation?" - **Samanta S**.; Mishra, B. K.; Pace, T. C. S.; Sathyamurthy , N.; Bohne, C.; Moorthy, J. N. ***J. Org. Chem.*** **2006**, *71*, 4453-4459.

No of Books/Book Chapters: Nil

Patents (if any): Nil

List of Honours/Awards:

- Received senior research fellowship (SRF) of CSIR, INDIA, 2005-2008.
- Qualified National Eligibility Test (NET) (among top 20% awardees) in Chemical Science
- Received Junior Research Fellowship (JRF) of CSIR, INDIA, 2003-2005.
- Qualified all INDIA Graduate Aptitude Test for Engineering (GATE) with 99.05 percentile
- (all India rank 28) in Chemical Science, 2003
- Received “Cunninghum Memorial Prize, Priyadaranjan Ray Memorial Prize and Sir
- Upendra Nath Brahmachari Memorial Prize”, 2002 for securing highest marks in M. Sc.
- Chemistry Part II
- Received “Sandip Shome Memorial Prize”, 2001 for obtaining highest marks in M. Sc. Chemistry Part I

Membership in scientific bodies: Nil

Editor/or Editorial Board Member/Reviewer: Served as reviewers of RSC, ACS & ELSEVIER journals (https://publons.com/dashboard/records/review/)

Lecture Presentations:

- 94th Canadian Chemistry Conference and Exhibition, June 5-9, 2011, Montréal, Quebec, Canada; talk title: “Bis-azobenzenes for photo-controlling structures and functions of peptides and proteins” – Samanta, S.