

MRINMOY SAHA, Ph.D.

Postdoctoral Fellow
Laboratory of Bioorganic Chemistry
NIDDK
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EDUCATION:

Oregon State University, Corvallis, Oregon 2008-2014
Ph. D. Synthetic Organic Chemistry

Indian Institute of Technology Guwahati, India 2005-2007
M. Sc. Chemistry

University of Calcutta, Kolkata, India 2002-2005
B. Sc. Chemistry

RESEARCH EXPERIENCE:

Post Doctoral Fellow with Dr. Daniel Appella 2015-Present
NIDDK, National Institutes of Health, Bethesda, Maryland

- Developed a series of small molecule drugs to inhibit Wip1 phosphatase.
- Executing design and synthesis of HIV-1 nucleocapsid protein inhibitors.
- Working on synthesis of peptide nucleic acids (PNAs) and associated monomers for the PNAs.

Doctoral Studies (Ph.D.) with Professor Rich Carter 2008-2014
Oregon State University, Corvallis, Oregon

Dissertation “**A Unified Approach for The Total Synthesis of C₁₀-Functionalized *Lycopodium* Alkaloids**”.

- Completed total syntheses 10-hydroxylycopodine, deacetylpaniculine, and paniculine.
- Optimized an organocatalyzed diastereoselective heteroatom Micheal reaction toward the eastern fragment of himeradine A.
- Synthesized the common intermediate towards the total synthesis of himeradine A and other related natural products such as lycopecurine, fastigiatine and inundatine.
- Worked on the Synthesis the C₅ epimer of the natural product cermizine C in our group's synthetic efforts towards cermizine C and cermizine D.
- Carried forward starting material in our group's synthetic studies toward azaspiracid-1.
- Harvested the club moss *lycopodium clavatum* and isolated different natural products for collaborative biological studies.
- Designed advanced level experimental chemistry lab for undergraduate chemistry majors.
- Developed new methods to prepare disubstituted benzophenones using Suzuki coupling reaction for advanced experimental chemistry lab.

Junior Research Fellow with Professor G. Krishnamoorthy 2007-2008
(Department of Science and Technology, India sponsored)
Indian Institute of Technology Guwahati, India

Project entitled “**Mechanism of Photochemical Reactions in Ionic Liquid**”.

- Synthesized substituted stilbenes and different ionic liquids for photochemical reactions.
- Gained skill in Gaussian to perform semi-empirical, H-F and DFT calculation on model compounds.

Master of Science Thesis Project
Indian Institute of Technology Guwahati, India

2007

Dissertation “**Synthesis, Characterizations and Spectroscopic Studies of Dienone Compounds**”.

- Synthesized and characterized a number of dienone compounds and their 2, 4-dinitrophenyl hydrazine derivatives.
- Spectroscopic studies (Absorption and Fluorescence) on the synthesized compounds were performed.
- Formations of inclusion compounds with organic as well as inorganic guests were studied by absorption and fluorescence spectroscopy and Thermogravimetric analysis.

Summer Research Project
Indian Institute of Technology Guwahati, India

2006

Project entitled “**Synthesis, Characterizations and Spectroscopic Studies of Dienone Compounds**”.

- Synthesized Schiff bases containing pyridyl functional groups.
- Synthesized Co(III) complexes of the Schiff bases and characterized using FT-IR, UV-Vis, NMR and X-ray diffraction methods.

SKILLS DEVELOPED:

- Well versed in analytical and spectroscopic techniques related to small-scale organic and peptide synthesis, i.e. 1D and 2D NMR, HPLC, GCMS, LCMS, HRMS, IR, UV-vis, fluorescence and chromatography (manual and Biotage).
- Proficient in structure-based drug design, lead optimization, synthesis, purification, and characterization of highly functionalized drug-like compound libraries.
- Extensive expertise in solid phase peptide and peptide nucleic acid synthesis.
- Designed research projects suitable for graduate students, taught laboratory techniques relevant to both synthetic and medicinal chemistry, and provided instruction regarding strategies for effective scientific writing and communication.
- Widespread experience in milligram to multigram scale organic synthesis, including route and reaction design/development.
- Gained experience in the writing and submission of scholarly publications.
- Well experienced with both oral and poster presentations.
- Efficient in chemical and solvent ordering, glassware repairing, peptide synthesizers, solvent purification system and glove box.
- Trained several group members (both graduate and undergraduate) in several aspects of synthetic organic chemistry.

PUBLICATIONS AND PRESENTATIONS:

Saha, M.; Serba, M. T.; Appella, D. H. “**Mercaptobenzamides as NCp7 Inhibitors.**” *Manuscript prepared.*

Rosenker, K. G.; Saha, M.; Appella, D. H. “**Small Molecule Inhibitors for Wip1 Phosphatase.**” *Manuscript prepared.*

Hartman, T. L.; Yang, L.; Helfrick, A. N.; Hassink, M.; Shank, N. I.; Rosenker, K. G.; Serba, M. T.; Saha, M.; Hughes, E.; Wang, A.; Xu, X.; Gupta, P.; Buckheit Jr., R.W.; Appella, D. H. “**Preclinical Evaluation of a Mercaptobenzamide and its Prodrug for NCp7-Targeted Inhibition of Human Immunodeficiency Virus.**” *Antiviral Research* 2016, *in press.*

Saha, M.; Li, X.; Collett, N. D.; Carter, R. G. “**Unified Synthesis of 10-Oxygenated *Lycopodium Alkaloids*: Impact of C10-Stereochemistry on Reactivity.**” *J. Org. Chem.* 2016, *81*, 5963-5980.

Saha, M.; Carter, R. G. "Toward a Unified Approach for Lycopodines: Synthesis of 10-Hydroxylycopdoine, Deacetylpaniculine, and Paniculine." *Org. Lett.* **2013**, *15*, 736-739.

Veerasamy, N.; Carlson, E. C.; Collett, N. D.; Saha, M.; Carter, R. G. "Enantioselective Approach to Quinolizidines: Total Synthesis of Cermizine D and Formal Syntheses of Senepodine G & Cermizine C." *J. Org. Chem.* **2013**, *78*, 4779-4800 and *ChemInform* **2013**, *44* (10.1002/chin.v44.37).

Saha, M.; Serba, M. T.; Appella, D. H. "Development of 2-Mercaptobenzamides as Small Molecule Inhibitors of HIV Maturation." *252nd National Meeting of the American Chemical Society*, Philadelphia, PA, August 2016, ORGN-447.

Li, X.; Saha, M.; Carter, R. G. "Synthetic Studies toward the Western Fragment of Himeradine A." *70th Northwest Regional Meeting of the American Chemical Society*, Pocatello, ID, June 2015, NORM-43.

Saha, M.; Carter, R. G. "Synthetic Studies toward the Total Synthesis of *Lycopodium* Alkaloids." *9th J-NOST Conference*, IISER Bhopal, India, December 2013.

Saha, M.; Carter, R. G. "Unified Approach to Lycopodines: Synthetic Studies toward C₁₀-Functionalized *Lycopodium* Alkaloids." *68th Northwest Regional Meeting of the American Chemical Society*, Corvallis, OR, July 2013, NORM-168.

Saha, M.; Carter, R. G. "Unified Approach toward the Syntheses of C₁₀-Functionalized *Lycopodium* Alkaloids." *43rd National Organic Symposium*, Seattle, WA, June 2013.

Saha, M.; Carter, R. G. "Unified Approach to the Total Syntheses of C₁₀-Functionalized *Lycopodium* Alkaloids." *245th National Meeting of the American Chemical Society*, New Orleans, LA, April 2013, ORGN-460.

Saha, M.; Carter, R. G. "Synthetic Approach Toward the *Lycopodium* Alkaloid Paniculine." *66th Northwest Regional Meeting of the American Chemical Society*, Portland, OR, June 2011, NORM-203.

Saha, M.; Carter, R. G. "Synthetic Approach Towards the Western Half of Himeradine A." *241st National American Chemical Society Meeting*, Anaheim, CA, March 2011, ORGN-263.

Dash, N.; Saha, M.; Chipem, F. A. S.; Krishnamoorthy, G. "Dual Fluorescence of 2-(4'-N,N-dimethylaminophenyl)pyrido[2,3-d]imidazole: Effects of Solvents." *National Symposium on Emerging Trends in Advanced Chemistry*, Jaipur, India, March 2008.

Dash, N.; Saha, M.; Chipem, F. A. S.; Krishnamoorthy, G. "Experimental and Computational Study of the Spectral Properties of 2-(4'-N,N-dimethylaminophenyl) pyrido[2,3-d]imidazole." *National Conference on Theoretical and Chemical Sciences*, Chidambaram, India, February 2008.

AWARDS AND FELLOWSHIPS:

Milton Harris Graduate Fellowship

2014

Oregon State University, Corvallis, Oregon

Awarded to exceptional advanced Ph.D. students for accomplishments in academics and outstanding performance in research work.

College of Science Student Travel Award

2013 & 2014

Oregon State University, Corvallis, Oregon

Given to graduate students with science majors for attending renowned meetings/conferences to present their research work.

- Graduate Student Travel Award** **2013**
Oregon State University, Corvallis, Oregon
Presented to outstanding graduate assistants for attending meetings/conferences with global significance to present their research work.
- Teaching Assistant Award** **2012**
Oregon State University, Corvallis, Oregon
Awarded to graduate teaching assistants for exceptional performance in the classroom and laboratory.
- Merit Scholarship** **2005-2007**
Indian Institute of Technology Guwahati, India
Awarded to students with excellent performance during their Master of Science program.
- Merit Certificate and Somnath Banerjee Memorial Medal** **2005**
Ramakrishna Mission Vidyamandira Residential College affiliated to University of Calcutta, India
Given to students with first class in the Bachelor of Science in chemistry program.
- Jindal Trust Scholarship** **2002-2005**
Jindal Trust, India
Awarded to the students with outstanding performance during their Bachelor of Science program in India.