

Madhu Sudan Manna

Instructor, Department of Pharmacology,
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Education

- Aug 2010-Dec 2015 Doctor of Philosophy (**Ph. D.**) in **Organic Chemistry** at Department of Organic Chemistry, **Indian Institute of Science (IISc)** Bangalore, India.
- Aug 2008-May 2010 Master of Science (**M. Sc.**) in **Chemistry** at **Indian Institute of Technology (IIT)** Guwahati, India. **CGPA: 9.81 (10.0)**
- Aug 2004-Jun 2008 Bachelor of Science (**B. Sc.**) in **Chemistry (Honors)** at **Bajkul Milani Mahavidyalaya**, Vidyasagar University, India.

Research Experience

- Since Oct 2021 **Instructor** at UT Southwestern Medical Center, Dallas, Texas
Projects: • *Understanding the mechanism of antibiotic resistance*
• *Addressing β -lactamase mediated antibiotic resistance problems*
- Dec 2019-Sep 2021 **Assistant Instructor** at UT Southwestern Medical Center, Dallas, Texas
Project: • *Understanding the mechanism of antibiotic resistance*
• *Development of mutant-specific dihydrofolate reductase (DHFR) inhibitors*
- Apr 2016-Nov 2019 **Postdoctoral Fellow** at UT Southwestern Medical Center, Dallas, Texas
Supervisor: Professors Uttam K. Tambar and Erdal Toprak
Projects: • *Development of catalytic regioselective allylic alkylation reactions*
• *Stereoselective α -amination of alkynes*
• *Development of mutant-specific dihydrofolate reductase (DHFR) inhibitors*
- Aug 2010-Jul 2015 **Ph. D.** at Indian Institute of Science, Bangalore, India
Supervisor: Professor Santanu Mukherjee
Thesis title: *Controlling stereochemistry at the quaternary center using bifunctional (thio)urea catalysis*
- Dec 2009-May 2010 **M. Sc. Project** at Indian Institute of Technology (IIT) Guwahati, India
Supervisor: Professor Tharmalingam Punniyamurthy
Thesis title: *Ligand free copper(I) catalyzed C-C cross-coupling reaction: Synthesis of substituted indoles*
- May 2009-Jul 2009 **Summer Project** at Indian Institute of Technology (IIT) Guwahati, India
Supervisor: Professor Bhubaneswar Mandal
Thesis title: *Solvent free esterification of amino acids using microwave irradiation*

Presentations

- May 2019 **Poster:** *Fighting antibiotic resistance: Development of novel DHFR inhibitors* in TexSyn IV, Baylor University, Texas, USA.
- Apr 2015 **Oral:** *Organocatalytic enantioselective formal $C(sp^2)$ -H alkylation* in K. V. Rao Scientific Society, Hyderabad, India.

- Dec 2014 **Poster:** *Catalytic enantioselective direct vinylogous Michael addition of deconjugated butenolides: Remarkable influence of secondary catalyst site* in 13th Eurasia Conference at IISc Bangalore, India (**Best Poster Award**).
- Sep 2014 **Poster:** *Catalytic enantioselective direct vinylogous Michael addition of deconjugated butenolides: Remarkable influence of secondary catalyst site* in Indo-German Conference on Bio-inspired Chemistry at IISc Bangalore, India.
- Dec 2012 **Oral:** *Catalytic enantioselective construction of quaternary stereocenter by direct vinylogous Michael addition of deconjugated butenolides* in 8th Junior National Organic Symposium Trust (J-NOST) Conference at IIT Guwahati, India.
- Jan 2012 **Oral:** *Asymmetric synthesis of quaternary stereogenic center: Conjugate addition of butenolides to nitroalkenes* in Pfizer symposium on Organic Chemistry at IISc Bangalore, India.

Academic Awards

- ❖ Eli Lilly Outstanding Ph. D. Thesis Award 2016.
- ❖ Selected for SERB Indo-US Postdoctoral Research Fellowship 2016-2017.
- ❖ Doctoral Fellowship from the Centre for Scientific and Industrial Research, India (2010-2015).
- ❖ Recipient of Merit Scholarship during Masters' from IIT Guwahati, India (2008-2010).

Publications

- ❖ “Catalytic regiodivergent alkylation of unbiased allylic carbonates” M. S. Manna, M. Sharique, U. K. Tambar, *Manuscript Under Preparation*.
- ❖ “A trimethoprim derivative impedes antibiotic resistance evolution” M. S. Manna et al, *Nat. Commun.* **2021**, DOI: 10.1038/s41467-021-23191-z.
- ❖ “Nitro-enabled catalytic enantioselective formal umpolung alkenylation of β -ketoesters” M. S. Manna, A. Ray Choudhury, S. Mukherjee, *Chem. Sci.* **2017**, *8*, 6686–6690.
- ❖ “Enantioselective formal $C(sp^2)$ -H vinylation”, M. S. Manna, R. Sarkar, S. Mukherjee, *Chem.–Eur. J.* **2016**, *22*, 14912–14919.
- ❖ “Organocatalytic enantioselective formal $C(sp^2)$ -H alkylation”, M. S. Manna, S. Mukherjee, *J. Am. Chem. Soc.* **2015**, *137*, 130–133.
- ❖ “Catalytic asymmetric desymmetrization approaches to enantioenriched cyclopentanes”, M. S. Manna, S. Mukherjee, *Org. Biomol. Chem.* **2015**, *13*, 18–24.
- ❖ “Remarkable influence of secondary catalyst site on enantioselective desymmetrization of cyclopentenedione”, M. S. Manna, S. Mukherjee, *Chem. Sci.* **2014**, *5*, 1627–1633.
- ❖ “Catalytic asymmetric direct vinylogous Michael addition of deconjugated butenolides to maleimides for the construction of quaternary stereogenic centers”, M. S. Manna, S. Mukherjee, *Chem.–Eur. J.* **2012**, *18*, 15277–15282.
- ❖ “Catalytic enantioselective construction of quaternary stereocenters by direct vinylogous Michael addition of deconjugated butenolides to nitroolefins”, M. S. Manna, V. Kumar, S. Mukherjee, *Chem. Commun.* **2012**, *48*, 5193–5195.

References

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