DR. SANTANU PANDA

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PROFESSIONAL EXPERIENCE

Indian Institute of Technology, Kharagpur, Kharagpur, India
Assistant Professor, Department of Chemistry (06/2018 – present)

EDUCATION

Case Western Reserve University, Cleveland, OH, USA
PhD in Chemistry (June 2013)
Indian Institute of Technology, Kharagpur, Kharagpur INDIA
M.Sc. in Chemistry (2006)
Vidyasagar University (Medinipur College), West Bengal, INDIA
B.Sc. (with Honors) in Chemistry (2004)

RESEARCH EXPERIENCES

University of Texas Southwestern Medical Center, Dallas, Texas
Postdoc, Aug 2013 – June 2018
Research Advisor: Prof. Joseph Ready

I initiated the research in organoboron chemistry at Prof. Ready lab for the first time and published two first author papers in **JACS** and **Angew Chem**.

- Designed methodology for the synthesis of various pyridines and dihydropyridines which are prevalent in 35% of FDA drugs and many bioactive molecules.
- Initiated a palladium catalyzed asymmetric three- component coupling of boronic esters, indoles and allylic acetates for the synthesis of 2,3-disubstituted chiral indole and indoline with three contiguous stereo centers, which are present in many FDA approved drugs and bioactive compounds.
- finished racemic synthesis of anticancer natural product dysoline.

Case Western Reserve University, **Cleveland**, Ohio, USA
Ph.D. Research, Jan 2009 – June 2013
Research Advisor: Prof. Anthony. J. Pearson

I initiated the research in organocatalysis at Prof. Pearson lab for the first time and published three first author papers.

Thesis title: *"N-Prolinylanthranilamide based organocatlysts for asymmetric aldol reactions"*

- Synthesis of the N-Prolinylanthranilamides starting with simple anthranilic acid analogue and use them as organocatlysts for asymmetric aldol reaction.
- Optimization of the aldol reaction between aromatic aldehydes and cyclic or acyclic ketones.

- Explored the aldol reaction between acetone and substituted isatins which were led to the synthesis of 3-hydroxy-3-substituted oxindoles.
- Finished the formal synthesis of TMC 95A using an asymmetric aldol reaction in one of the important step.

Syngenta Bioscience Pvt. Ltd. Research and Technology, Goa, India, July 2006 - Nov 2008
Research Advisor: Dr. Seetharam Pal, Dr. Mangala Govenkar

- *Structure based design of herbicides inhibiting plant growth*
  - Optimization and synthesis of various target molecules using Suzuki and Heck coupling reactions at the penultimate step.
  - Developed a protocol for C-arylation of bicyclic β-dicarbonyl compounds by hindered aryllead(IV) triacetates, which was not possible by modified Suzuki or Heck coupling conditions.
  - Expertise in organic synthesis and independent handling of HPLC, LC-MS, GC-MS, CombiFlash, Flow reactor and 400 MHz NMR instruments, **contributed to four European patents**.

Summer Research fellow, Dr. Reddy's Discovery Research, Hyderabad, India, May 2005 - July 2005
Research Advisor: Prof. Javed Iqbal

- Synthesis of an *azo*-based metal sensors which possess a cavity surrounded by heteroatoms, capable of forming a complex with metal ions of suitable size.

Graduate Research, Indian Institute of Technology-Kharagpur, **West Bengal, India**, Aug 2005 - May 2006
Research Advisor: Prof. Amit Basak

- Total synthesis of Clavaminic acid, a precursor of the antibiotic Clavulanic acid.

TEACHING EXPERIENCES

- **Teaching Assistant,** "**CHEM 233**: Introductory Organic Chemistry Laboratory I", Fall 2010/2011/2012, Case Western Reserve University. "**CHEM 111** - Principles of Chemistry for Engineers" Fall 2009, Case Western Reserve University. "**CHEM 105** - Principles of Chemistry I", Spring 2009/2010/2011/2012/2013, Case Western Reserve University. ''**CHEM 234**: Introductory Organic Chemistry Laboratory II'' Summer 2009, 2010, 2011, 2012.

HONORS AND AWARDS

- **Ramanujan Fellowship** 2018
- **Best Poster Award** at 2017 UTSW Biochemistry Retreat at Dallas Botanical Garden, Dallas

- **Invited seminar** to the annual Biochemistry Department Seminar series at UT Southwestern Medical Center
- **Graduate outstanding teaching assistant award 2013**, Department of Chemistry, Case Western Reserve University
- ACS (American Chemical Society) Travel Award 2012
- Syngenta engagement team award, 2008, Goa, India
- Graduate Aptitude Test in Engineering (GATE) Qualified 2006, IIT Kharagpur, West Bengal, India
- Indian Academy of Science Summer Research Fellowship 2005, Bangalore, India
- **Merit-cum-Means (MCM) scholarship** 2006 in IIT Kharagpur, West Bengal, India
- **Vidyasagar University Second Position in B.Sc**. 2004, West Bengal, India
- Secondary Level West Bengal government Scholarship, 1999, West Bengal, India

PUBLICATIONS

1) "Tandem Allylation/1,2-Boronate Rearrangement for the Asymmetric Synthesis of Indolines with Adjacent Quaternary Stereocenters" **S. Panda**, Prof. J. M. Ready, *J. Am. Chem. Soc*. Under review
2) "Mechanistic understanding of SmI_2 catalyzed 1,2-migration of boronate esters" **S. Panda**, A. Q. N. Nguyen, Prof. D. Tantillo, Prof. J. M. Ready, *manuscript under preparation.*
3) "Palladium Catalyzed Asymmetric Three Component Coupling of Boronic Esters, Indoles and Allylic Acetates, **S. Panda,** Prof. J. M. Ready," *J. Am. Chem. Soc.* **2017**, *139*, 6038-6041. [***impact factor 2016 13.07***]
4) "Synthesis and Utility of Dihydropyridine Boronic Esters" **S. Panda**, A. Coffin, Q. N. Nguyen, Prof. D. Tantillo, Prof. J. M. Ready, *Angew. Chem. Int. Ed.* **2016**, *55*, 2205-2209. [***impact factor 2016 11.99***]
5) "Synthesis of a Potential Intermediate for TMC-95A via an Organocatalyzed Aldol Reaction" A. J. Pearson, **S. Panda**, Bunge, S. D. *J. Org. Chem.*, **2013**, *78*, 9921–9928. [***impact factor 2016 4.57***]
6) "N-Prolinylanthranilamide Pseudopeptides as Bifunctional Organocatalysts for Asymmetric Aldol Reactions" A. J. Pearson, **S. Panda**. Org*. Lett.* **2011**, *13*, 5548-5551. [***impact factor 2016 6.58***]
7) "N-Prolinylanthranilic Acid Derivatives as Bifunctional Organocatalysts for Asymmetric Aldol Reactions" **S. Panda**, A. J. Pearson, *Tetrahedron,* **2011**, *67*, 3969-3975. [***impact factor 2016 3.0***]

SYMPOSIA AND PRESENTATIONS

1. 'Synthesis of N-Heterocycles via 1,2-Migration of Boron-ate Complexes' **S. Panda**, Prof. J. M. Ready, NOST-XVII, IISER Bhopal, India, Aug 24^{th} – 27^{th} 2017.

2. 'Stereoselective Synthesis of N-Heterocycles' **S. Panda**, invited seminar at department of biochemistry UT southwestern medical center, Dallas, May 4th 2017.
3. 'Palladium Catalyzed Asymmetric Three Component Coupling of Boronic Esters, Indoles and Allylic Acetates' **S. Panda**, Prof. J. M. Ready, TexSynIII conference, UT southwestern medical center, Dallas, 20th May 2017.
4. 'Transition Metal Free C-C Coupling of Heteroaryl Boronates with Alkyl, Alkenyl, & Alkynyl Nucleophile'

S. Panda, Aaron Coffin, Joseph M. Ready, UT Southwestern medical center department retreat, UT southwestern medical center, Dallas Oct 28th 2014.

5. 'N-Prolinylanthranilamide based Pseudopeptides for Asymmetric Aldol Reactions' **S. Panda**, A. J. Pearson, Graduate student research showcase, Case western reserve university, Cleveland, April 12 2013.
6. 'N-Prolinylanthranilamide based Pseudopeptides for Asymmetric Aldol Reactions' **S. Panda**, A. J. Pearson, 243rd ACS National meeting, San Diego, 25th March, 2012.
7. 'Development of N-prolinylanthranilamide pseudopeptides for asymmetric aldol reactions' **S. Panda**, A. J. Pearson, *ACS Cleveland Section meeting in miniature* 2012, Oberlin college, Oberlin, Ohio, 21st March 2012.
8. 'N-Prolinylanthranilamide Pseudopeptides as Bifunctional Organocatalysts for Asymmetric Aldol Reactions' **S. Panda**, A. J. Pearson, *GSIRC symposium*, Cleveland State University, Cleveland, Ohio, Oct 15th 2011.
9. 'N-Prolinylanthranilamide Pseudopeptides as Bifunctional Organocatalysts for Asymmetric Aldol Reaction' **S. Panda**, A. J. Pearson, Case Western Reserve University, *Chemistry Department Retreat*, Cleveland, Ohio, Oct 8th, 2011.
10. 'N-Prolinylanthranilic Acid Derivatives as Bifunctional Organocatalysts for Asymmetric Aldol Reactions' **S. Panda**, A.J. Pearson *ACS Cleveland Section meeting in miniature* 2011, Ursuline College, Pepper Pike, Ohio, March 16, 2011.
11. 'Design of New Herbicides Inhibiting Acetolactate Synthase' **S. Panda**, M. Govenkar, I. Sen, S. Sasmal, S. Pal; *Syngenta Science matters,* Syngenta, Goa, India Oct 2007.