Ditsa Sarkar

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As a Ph.D. student, I have enthusiastically conducted investigations to understand the mechanism of enzyme regulation using a combination of biochemical and biophysical techniques. My first author paper is under revision in one of the leading journals. I have already published a paper by contributing significantly to a collaborative project. Besides research experiences, I have presented my findings in several conferences and have also received two awards for my verbal skills. Additionally, I possess experiences in writing research grants. My long-term goal is to pursue a career in research and establish myself an independent investigator.

EDUCATION

National Institute of Immunology, New Delhi, India- *Ph.D.in Biochemistry*

2016-to date | "Biochemical and biophysical investigation of *Helicobacter pylori* N-carbamoylputrescine amidase, an enzyme involved in polyamine biosynthesis." *Supervisor: Dr. Apurba Kumar Sau*

Pondicherry University, Puducherry, India - *M.Sc in Biochemistry and Molecular Biology*

2014-2016 | CGPA: 8.91 First class

University of Calcutta, Kolkata, India- *B.Sc (Honours) in Biochemistry*

2011-2014 | Percentage: 71.8 First class

AWARDS AND SCHOLARSHIPS

2021 Winner of Graduate Poster Competition at the 35th Anniversary Symposium of the Protein Society, USA

2021	Winner of Anniversary Award at the 35th Anniversary Symposium of the Protein Society, USA
2018-to-date	Promoted from Junior Research Fellow to Senior Research Fellow, National Institute of Immunology, India
2016-2018	Awarded the Junior Research Fellowship, National Institute of Immunology, India
2016	Cleared GATE 2016 with 99.9 percentile (AIR 158)
2014-2016	Awarded scholarship for ranking in top 5, during Master's program, Pondicherry University

PUBLICATIONS

- **Sarkar, D.**, Vijayan, R., Gourinath, S., and Sau, A. K.
  "A unique aromatic cluster near the active site of *H. pylori* CPA is essential for catalytic function." (Under Review)

- Dutta, A., **Sarkar**, **D.**, Murarka, P., Kausar, T., Narayan, S., Mazumder, M., Ainavarapu, S. R. K., Gourinath, S., and Sau, A. K.
  "An evolutionary non-conserved motif in *Helicobacter pylori* arginase mediates positioning of the loop containing the catalytic residue for catalysis."
  Biochem. J. **2021**. https://doi.org/10.1042/BCJ20200978

CONFERENCES

Poster Presentations

2021	**Sarkar, D.**, Dutta, A., Narayan, S., Mazumder, M., Koti, S. R., Gourinath, S., and Sau, A. K. "An evolutionary non-conserved motif in *Helicobacter pylori* arginase mediates positioning of the loop containing the catalytic residue for catalysis." *35th Annual Symposium of the Protein Society, USA (virtual) July, 2021*
2019	**Sarkar, D.**, Vijayan, R., Gourinath, S., and Sau, A. K. "Elucidating the role of highly conserved aromatic residues of *Helicobacter pylori* N-carbamoylputrescine amidase located near its catalytic site."

FCS 2019, National Workshop on Fluorescence and Raman Spectroscopy TIFR, Hyderabad, India, December, 2019

2016 **Sarkar, D.**, Kharkongor, M., Syam, P. K., and Sudha Rani, S.
"Protective effects of green synthesized silver nanoparticles from *Costus* pictus leaf extract in diabetic Rats."
Drug Discovery and Cancer Therapy Pondicherry University, Puducherry, India February, 2016

Oral Presentations

2020 "Elucidating the role of highly conserved aromatic residues of *Helicobacter pylori* N-carbamoylputrescine amidase located near its catalytic site."
Biannual Meeting of Protein Society India, AUH Chapter, Amity University Haryana, India January 2020

Participations

2017 *Protein structure and dynamics in health and agriculture Protein Society India, Jamia Millia Islamia, New Delhi, India November, 2017*

RESEARCH EXPERIENCE

Thesis:

2016-to date **Protein Engineering Lab, National Institute of Immunology, New Delhi, India**
Research Scholar

"Biochemical and biophysical investigation of *Helicobacter pylori* N-carbamoylputrescine amidase, an enzyme involved in polyamine biosynthesis."

Supervisor: Dr. Apurba Kumar Sau

- Performed the investigations using techniques like size-exclusion chromatography coupled with multi-angle light scattering (SEC-MALS), high performance liquid chromatography (HPLC), Fast protein liquid chromatography (FPLC), and circular dichroism (CD), fluorescence and UV- VIS spectroscopy.

- Experience in using Rapid Chemical Quench Flow instrument to perform pre-steady state kinetics in millisecond time scale.

- Used the aid of bioinformatics tools such as UCSF Chimera 1.15, PyMOL 2.2, Clustal Omega, and SWISS-MODEL.

Other Project:

2016-to date **Protein Engineering Lab, National Institute of Immunology, New Delhi, India**
Research Scholar

"An evolutionary non-conserved motif in *Helicobacter pylori* arginase mediates positioning of the loop containing the catalytic residue for catalysis."

Supervisor: Dr. Apurba Kumar Sau

- Contributed to a team investigating the role of a non-conserved motif in *Helicobacter pylori* arginase crucial for the enzyme function.

- Personally, completed the experiments involving the determination of secondary structure and thermal stability using CD spectroscopy.

- Also carried out certain biochemical experiments like determination of steady-state kinetic parameters, metal binding analysis and substrate binding measurements.

Master's Dissertation:

2015-2016 **Dept. of Biochemistry and Molecular Biology, School of Life Sciences, Pondicherry University, Puducherry, India**

Project: "Studies on the effect of green synthesized silver nanoparticles from *Costus* pictus leaf extract on serum and tissue lipids in type 2 diabetic rats."

Supervisor: Dr. S. Sudha Rani

- Personally, synthesized silver nanoparticles from *Costus* pictus leaf extract.

- Worked with male Sprague Dawley rats. The animals were ethically sacrificed. Their serum and organs were collected to determine the necessary biochemical parameters such as serum SGPT, SGOT, alkaline phosphatase and cholesterol levels.

Summer Internship Training:

2015 (May-July) **Ramkrishna Mission Seva Pratishthan, Kolkata, India**
Summer Internship Training

Project: "A study of biochemical and hematological parameters in nephrotic children of Kolkata." *Supervisor:* Dr. Rinini Dastidar

- Contributed to a team analysing the blood samples of patients visiting the paediatric medicine OPD of Ramakrishna Mission Seva Pratishthan Hospital.

- Personally, estimated the biochemical and hematological parameters of some of the patient samples.

SOCIETY MEMBERSHIP

2021 Member of The Protein Society, USA (User ID: 8965)

REFERENCES

1. **Dr. Apurba Kumar Sau**
   Scientist VII
   Protein Engineering Lab
   National Institute of Immunology
   New Delhi, India
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   Email: apurbaksau@gmail.com

2. **Dr. Samudrala Gourinath**
   Professor
   School of Life Sciences
   Jawaharlal Nehru University
   New Delhi, India
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3. **Dr. Debasisa Mohanty**
   Scientist VII

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