ANIRUDHA DUTTA (PhD)

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Address: Kolkata, West Bengal, India

Date of Birth: 26th January 1986

Gender/Sex: Male

Nationality: Indian

Summary

I have research expertise in structural biology (protein crystallography) with keen interest in bacterial signaling and pathogenesis. Currently I am working on development of protein nano-fiber based delivery system for probiotics. I teach different topics in Biochemistry, Biotechnology and Molecular biology to B.Sc and M.Sc Microbiology and Biochemistry students.

Achievements

- Established a research Lab with one full-time PhD student.
- Received a research grant of Rs 26.62 lakhs from **DST-SERB in SRG** scheme (November 2022)
- Awarded **National postdoctoral fellowship (NPDF)** from Science and Engineering Research Board (SERB), Govt. of India (2017) (Declined).
- Qualified **Graduate Aptitude Test in Engineering** (GATE) 2009, percentile 99.69, **All India Rank: 41** in the discipline Life Science.
- Qualified CSIR-UGC **National Eligibility Test** (NET) 2011.

Job Experience

1. **Assistant professor (Aug 2021 to present)**, Department of Biological Sciences, Adamas University, Kolkata, West Bengal, India.
2. **Postdoctoral fellow (Oct. 2017 to Aug. 2021)** Department of Medical and Molecular Sciences, **University of Delaware**, Delaware, USA

3. **Postdoctoral fellow (Feb 2017 to Oct. 2017). Rutgers Biomedical and Health Sciences**, Rutgers University, Newark, New Jersey, USA

Academic Qualifications

- **PhD (2016)** in Protein Biochemistry and Structural biology. PhD thesis title: Crystal structure determination and biochemical characterization of staphylococcal Inositol monophosphatases. Supervisor: Prof. Amit Kumar Das. Institute: **Indian Institute of Technology Kharagpur**, India.

- **M.Tech (2011)** in Biotechnology and Biochemical engineering from **Indian Institute of Technology Kharagpur.**

- **M.Sc (2009)** in Biochemistry from University of Kalyani, West Bengal, India.

- **B.Sc (2007)** in Chemistry (HONS), Physics and Mathematics from Kandi Raj College, University of Kalyani, West Bengal.

Research grants

	Details	**Grant value (lakh)**	**Status**
Principal investigator	**SERB-funded SRG grant (SRG/2022/000707) Title:** Development of a natural protein nanofiber based nano-encapsulation matrix for oral delivery of probiotics.	**26.62**	**Ongoing**
Co-principal investigator	**SERB-NPDF (PDF/2016/002794) Title:** Structural characterization and assembly dynamics of Streptococcus pneumonia cell division associated cytoskeleton protein FtsZ and accessory protein SepF with implementation in antimicrobial drug development	**19.2**	Declined

Supervision skill

Thesis/Dissertation	Submitted		Ongoing	
	Supervised	Jointly-supervised	Supervised	Jointly-supervised
PhD	-	-	1	-
Master degree	4	3	1	3
Under graduation	8	0	2	0

List of Publications (Journals)

1. **Dutta, A.,** Banerjee, S., Dinda, S., Chowdhury, I., Haldar, S., Bandyopadhyay, S., (2022). A critical analysis on the roles of exopolysaccharides and ACC deaminase in salinity stress tolerance in crop plants. **Biocatalysis and Agricultural Biotechnology** 42, 102372. **(Impact factor: 3.28)**
2. Xia P, **Dutta A**, Gupta K, Batish M, Parashar V. (2022) Structural basis of cyclic oligoadenylate binding to the transcription factor Csa3 outlines crosstalk between Type-III & Type-I CRISPR systems. **J. Biol. Chem.** 298(2) 101591 Jan 14;101591. (doi: 10.1016/j.jbc.2022.101591). **(Impact factor: 5.15)**
3. **Dutta A**, Batish M, Parashar V. (2021) Structural basis of KdpD histidine kinase binding to the second messenger c-di-AMP. **J. Biol. Chem**. 296; 100771 (https://doi.org/10.1016/j.jbc.2021.100771). **(Impact factor: 5.15)**
4. Gregory GJ, **Dutta A**, Parashar V, Boyd EF. (2020) Investigations of dimethylglycine (DMG), glycine betaine (GB) and ectoine uptake by a BCCT family transporter with diverse substrate specificity in Vibrio species. **J Bacteriol.** Volume 202 Issue 24 e00314-20. **(Impact factor: 3.49)**
5. Chaudhury S, **Dutta A,** Bag S, Biswas P, Das AK, Dasgupta S. (2018) Probing the inhibitory potency of epigallocatechin gallate against human γB-crystallin aggregation: Spectroscopic, microscopic and simulation studies. **Spectrochim Acta A Mol Biomol Spectrosc.** 2018 Mar 5;192:318-327. **(Impact factor: 4.48)**

6. **Dutta A**; Btattacharyya S; Kundu A; Dutta D; Das AK. (2016) Macroscopic Amyloid Fiber formation by Staphylococcal Biofilm Associated SuhB protein. **Biophysical Chemistry**. 217, 32–41. **(Impact factor: 2.35)**
7. Bhattacharyya S, **Dutta A,** Dutta D, Ghosh, AK, Das AK. (2016). Structural elucidation of the NADP(H) phosphatase activity of staphylococcal dual-specific IMPase/NADP(H) phosphatase. **Acta Cryst. D** 72, 281–290. **(Impact factor: 7.65)**
8. Kundu P, Biswas R, Mukherjee S, Reinhard L, **Dutta A,** Dieckmann JM, Weiss MS, Pal NK, Das AK. (2016) Structure-based epitope mapping of Mycobacterium tuberculosis secretary antigen MTC28. **J. Biol. Chem. 291(27) , 13943–1395, , 2016**. **(Impact factor: 5.15)**
9. Kundu A, **Dutta A**, Biswas P, Das A. K, Ghosh A. K. (2015) Functional insights from molecular modeling, docking, and dynamics study of a cypoviral RNA dependent RNA polymerase. **J. Mol. Graphics Modell.** 61, 160–174. **(Impact factor: 2.51)**
10. Biswas R, **Dutta A**, Dutta D, Hazra D, Banerjee D R, Basak A, Das A K. (2015) Crystal structure of dehydratase component HadAB complex of mycobacterial FAS-II pathway. **BBRC** 458(2), 369-374. **(Impact factor: 3.57)**
11. **Dutta A**, Bhattacharyya S, Dutta D, Das AK. (2014) Structural elucidation of the binding site and mode of inhibition of Li+ and Mg2+ in inositol monophosphatase. **FEBS Journal** 281, 5309–5324. **(Impact factor: 5.54)**
12. Dutta D, **Dutta A**, Bhattacharjee A, Basak A and Das, A K. (2014). Cloning, expression, crystallization and preliminary X-ray diffraction studies of Staphylococcal superantigen-like protein 1. **Acta Crystallogr Sect F** Struct Biol Cryst Commun. 70, 600-603. **(Impact factor: 1.05)**

List of Publications (Book chapters)

1. Chatterjee, A.; Kundu, A.; **Dutta, A**. Iron Metabolism and Its Importance in Sports Science. In Examining Physiology, Nutrition, and Body Composition in Sports Science; IGI Global, 2025; pp 237–266. https://doi.org/10.4018/979-8-3693-6317-1.ch008.

Crystal structures submitted in Protein Structural Databank (PDB)

3T0J, 5I3S, 5J16, 5DW8, 4I40, 4I3E, 4I3Y, 4PTK, 4O1N, 7JI4, 6WXQ.

Scholarship and Awards

- Institute fellowship from Indian Institute of Technology Kharagpur for PhD (2014-2016).
- Travel Grant from IIT Kharagpur, to attend international conference on emerging trends in biotechnology, New Delhi (2014).
- MHRD fellowship for pursuing M.Tech at IIT Kharagpur (2009-2011).

Conference and symposium

Oral/poster presented	Title of presentation	Seminar/conference	Organizer	Date
Oral presentation	Crystal structure determination and biochemical characterization of inositol monophosphatase	42nd national seminar on crystallography and international workshop on application of X-ray diffraction on drug discovery	AIMS, JNU Delhi	November 2013
Poster presentation	Macroscopic amyloid fiber formation by Staphylococcal SuhB	International conference on immerging trends in Biotechnology (ICETB 2014)	JNU, New Delhi	November 2014
Oral presentation	Protein Nanofibers-Based Delivery System for Oral Probiotics	3rd National Conference on Frontiers of Modern Physics (NCFMP 2021)	Adamas University	November 2021
Oral presentation	Role of Universal Stress protein in bacterial cell signaling	UGC-SAP DRS) Sponsored National Symposium on Stress Biology: Recent Advances in Biochemical and Biophysical Research	University of Kalyani, West Bengal	March 2023
Oral presentation	Structural characterization of atypical ACC Deaminases from potent PGPR strain *H. diazotrophicus* E19T	7th International Conference on Biotechnology and Biological Sciences	Department of Biotechnology, University of Engineering and Management, Kolkata in collaboration	16th to 18th November 2023

			with School of Health Sciences, Universiti Sains Malaysia	
Oral presentation	Identification of antimicrobial peptides from a pool of uncharacterized mini-proteins in *Staphylococcus aureus* by a genome wide screening approach.	INTERNATIONAL SYMPOSIUM ON BIOTECHNOLOGY 2024	Postgraduate And Research Department of Biotechnology, St xavier's college, Kolkata	12-13th November 2024

Faculty development course

1. **"Advances In Machine Learning, Image Processing and Natural Language Processing"** organized by Nagaland University, Dimapur from 16th Aug – 21st Aug 2023

2. **"Recent Advancement in Nutraceuticals"** organized by the Department of Pharmacy, School of Medical & Allied Sciences, Galgotias University from 18th-22nd September 2023.

3. **NEP 2020 orientation and sensitization program under Malaviya Mission teachers training program (MM-TTP) of UGC** organized by Indian Institute of Technology (Indian School of Mines), Dhanbad from 18/12/23 to 30/12/2023.

Organization skills

No	Events	Date
1	Coordinator of Value added courses at School of Life Science and Biotechnology, Adamas University	2021-till today
2	Timetable coordinator of Department of Biological Sciences	2021-till today
3	NAAC criteria-3 coordinator, School of Life Science and Biotechnology, Adamas University	2022- till today

4	Conducted ‘Hands on training in Molecular biology and Bioinformatics’ at Adamas University	19-04-2022
5	Conducted ‘one day skill development workshop on Modern biological tools and techniques’ at Adamas University	12-01-2022
6	Conducted ‘Hands on training in Bio-molecular imaging’ at Adamas University	12-07-2022
7	One day seminar on ‘Metabolomics in drug discovery’ at Adamas University	29-08-2023

Declaration

I do hereby declare that all the details given above are true to the best of my knowledge.

Dr. Anirudha Dutta