

SHUBHAM DAS, Ph.D.

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RESEARCH & PERSONAL STATEMENT

I am Shubham Das, a dedicated researcher with a passion for understanding the intricate dynamics of the actin cytoskeleton. Recently I completed my PhD at IISER Kolkata, my research expertise lies in investigating the dynamic behavior of the actin cytoskeleton, a fundamental component essential for cell structure, movement, and cell division etc. With a strong foundation in cell biology and biochemistry, I am adept at designing and executing experiments using cutting-edge techniques and molecular biology approaches, as well as analyzing complex datasets. I thrive in collaborative environments, leveraging interdisciplinary approaches to tackle challenging research questions and drive scientific innovation. As I continue to pursue my academic and professional endeavors, I am dedicated to unraveling cellular biology's mysteries and transforming findings into tangible real-world advancements.

EDUCATION

Jan 2020 -June 2025: Ph.D., IISER Kolkata (Biology)

July 2016-Aug 2018: M.Sc., University of Gour Banga (Zoology; specialization Immunology)

June 2013-May 2016: B.Sc., University of Gour Banga (Zoology Hons)

SPECIALIZATION: Biochemistry and Cell Biology

FELLOWSHIP & ACHIEVEMENTS

2025 EMBO Travel grant for EMBO Frontiers in Cytoskeleton Research Workshop 2025
2024 EMBO Travel grant for Cell Bio 2024, American Society for Cell Biology (ASCB)
2024 ANRF (formerly SERB) travel grant for Cell Bio 2024, ASCB
2020 WBCSC-SET 2020
2019 CSIR-UGC NET JRF- JUNE 2019 (All India Rank-18)
2019 GATE- 2019

PUBLICATIONS: (Peer-reviewed research articles)

Google Scholar Profile: Shubham Das (7th Jan 2026 citations: 43; h-index: 5; i10-index: 2)

1. **Das, Shubham.**; Das, Saikat.; Maity, A.; Maiti, S. Nuclear Protein FNBP4: A Novel Inhibitor of Non-diaphanous Formin FMN1-Mediated Actin Cytoskeleton Dynamics. *Journal of Biological Chemistry* 2025, 301(6), 108550. <https://doi.org/10.1016/j.jbc.2025.108550>
2. Mallick, T., Mondal, A., **Das, S.**, De, P. Inhibition of Insulin Amyloid Fibrillogenesis Using Antioxidant Copolymers with Dopamine Pendants. *Small* 2025, 2501206. <https://doi.org/10.1002/sml.202501206>
3. **Das, Shubham.**; Das, Saikat.; Rath, P. P.; Banerjee, A.; Gourinath, S.; Mukhopadhyay, A. K.; Maiti, S. Hemolysin Coregulated Protein (HCP) from *Vibrio Cholerae* Interacts with the Host Cell Actin Cytoskeleton. *ACS Infectious Diseases* 2024, 10 (8), 2886–2898. <https://doi.org/10.1021/acsinfecdis.4c00265>
4. **Das, S.**; Maiti, S. Probing the Ligand Binding Specificity of FNBP4 WW Domains and Interaction with FH1 Domain of FMN1. *Current Research in Structural Biology* 2024, 7, 100119. <https://doi.org/10.1016/j.crstbi.2023.100119>.
5. **Das, S.**; Banerjee, A.; Roy, S.; Mallick, T.; Maiti, S.; De, P. Zwitterionic Polysulfobetaine Inhibits Cancer Cell Migration Owing to Actin Cytoskeleton Dynamics. *ACS Applied Bio Materials* 2024, 7 (1), 144–153. <https://doi.org/10.1021/acsbm.3c00682>.
6. Sahoo, S.; Paul, S.; Pan, S.; Pal, D.; **Das, S.**; Maiti, S.; Mukhopadhyay, B.; Tecilla, P.; De, P. Multifunctional Alternating “Bitter-Sweet” Macromolecular Architecture. *ACS Applied Polymer Materials* 2023, 5 (2), 1474–1486. <https://doi.org/10.1021/acsapm.2c01867>

Manuscripts In Preparation/Submitted:

7. Saikat Das[#], **Shubham Das**[#], Sankar Maiti*. Deciphering the Interaction Between Dvl2 and Profilin: Effector Molecules of Non-Canonical Wnt Signaling. (*Submitted; # equal contribution*) <https://doi.org/10.1101/2025.10.09.681388>
8. **Shubham Das**^{*}, Saikat Das, Sankar Maiti*. Dual Regulatory Role of Nuclear FNBP4 in Actin Binding and Formin FMN1 Inhibition. <https://doi.org/10.64898/2026.01.05.697755> (*Submitted; * corresponding authors*)
9. **Shubham Das**^{*}, Rahul Singh, Kousik Bhattacharya, Sankar Maiti*. Understanding the Relation of WW Domain Containing Proteins and Actin Cytoskeleton: A Review. (manuscript in preparation; * corresponding authors)
10. **Shubham Das**[#], Saikat Das[#], Sankar Maiti*. FNBP4 Inhibits Diaphanous-Related Formins Daam1- and mDia1-Mediated Actin Cytoskeleton Remodeling. (manuscript in preparation; # equal contribution)

RESEARCH EXPERIENCE & SKILLS:

1. **Research Scholar, IISER Kolkata (June 2025-October 2025):** Exploring the regulatory role of FNBP4 in cell migration and actin cytoskeleton remodeling, integrating biochemical, biophysical, and cell biological approaches.
2. **PhD Scholar, IISER Kolkata (Jan 2020-June 2025):** Designed actin biochemistry projects and experiments to study the protein-protein interaction and the actin cytoskeleton regulation. Working on the characterization of novel actin-interacting proteins and their domains, under the supervision of Dr. Sankar Maiti.
3. **Fund Acquisition:** Successfully secured over ₹ 52,00,000 in funding through “Core Research Grant” applications (Project titled "Unravelling the Regulatory Mechanism of FNBP4-Mediated FMN1 Regulation and Actin Cytoskeleton Remodeling during Cell Migration") from SERB, DST, Government of India under the supervision of Dr. Sankar Maiti during the academic year 2023.
4. **Cell Bank Management, IISER Kolkata (Nov 2022-April 2024):** Established and maintained a departmental cell bank containing a diverse range of cell lines to support research activities.
5. **M.Sc. Dissertation Project, University of Gour Banga (Feb 2018-April 2019):** I had gained some experience to work on certain aspects of Immunology with “Association of HLA class-II genes in Autoimmune HASHIMOTO THYROIDITIS” under the guidance of Dr. Manoj Lama.

Skills:

<p>Experimental skills: 1) Molecular Cloning and Site-Directed Mutagenesis; 2) Protein Purification; 3) Actin Purification and fluorophore labelling; 4) Actin reconstitution assays; 5) Protein-protein interaction (ITC, SPR, DLS, ELISA); 6) Protein Biochemistry; 7) Polyclonal Antibody generation; 8) Spectroscopic Methods; 9) Animal Cell Culture Methods; 10) Immunofluorescence & Imaging; 11) Western Blotting; 12) Immunoprecipitation; 13) Drug treatment and cell viability checking; 14) Cell migration assay</p>

<p>Instrument handling skills: 1) FPLC (AKTA pure); 2) Surface plasmon resonance (SPR-Cytiva); 3) Fluorescence Spectroscopy (PTI); 4) Iso-Thermal Calorimetry (ITC-Malven); 5) Microscopy-Epifluorescence (Nikon); 6) Confocal (Leica, Nikon); 7) Total internal reflection microscopy (TIRF Nikon); 8) Ultracentrifugation (Beckman coulter); 9) CD spectroscopy (JASCO CD)</p>

<p>Software skills: 1) LasX, 2) ImageJ, 3) Zotero, 4) GraphPad Prism-8</p>

<p>Language skills: 1) Bengali (Native), 2) English, 3) Hindi</p>
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TEACHING AND MENTORING EXPERIENCE

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| 2021 | Biology laboratory course (LS2203) at IISERK |
| 2024 | Cell Biology and Imaging Laboratory (LS3104) at IISERK |

Mentees:

2022	Pramit Das (visiting master's student, now PhD student at IIT KGP)
2023	Koushik Bhattacharya (visiting master's student, now PhD student at Bar Ilan University)
2024-2025	Amrita Maity (visiting PhD student from Theoretical & Physical Biology Group, IISERK)
2025	Rohini Ghosh (visiting undergraduate student from KIIT University)
2025	Monoswini Mallick (visiting undergraduate student from Heritage Institute of Technology)

TALK & POSTER PRESENTATION

2024	Presented a poster on “Unraveling the regulatory mechanism of FNBP4-mediated FMN1 regulation in actin cytoskeleton remodeling” at ASCB/EMBO CellBio-2024 (San Diego, USA 14/12/2024-18/12/2024)
2024	Presented talk on “HCP, a novel actin-binding protein from <i>Vibrio cholerae</i> that regulates host cell actin cytoskeleton” at 6th Regional Science & Technology Congress (University of Kalyani, 03/01/2024)
2023	Presented a poster on “Zwitterionic Polysulfobetaine Modulates Actin Cytoskeleton Dynamics that Inhibit Cancer Cell Migration” at SPS-2023 (IISER Kolkata, 14/11/2023)
2017	Presented a poster on “Drugs from the Deep: Biomedical Compounds from Marine Ecosystem” at Biodiversity: Its Uses in Sustainable Development (University of Gour Banga, 19/01/2017)

CONFERENCES AND SEMINARS

1. Membrane: Methods and Applications (MeMApp). IISER-K, 2024
2. Frontiers in Modern Biology (FIMB), Department of Biological Sciences, IISER-K, 2023
3. Bilateral Indo-US Webinar on COVID, IISER-K, IISc, University of Colorado USA, 2020
4. Frontiers in Modern Biology (FIMB). Department of Biological Sciences, IISER-K, 2020
5. Workshop on Molecular docking & Biomolecular interactions, Pathfinder Foundation, 2020
6. Science Leadership Workshop, Central University Punjab, 2020
7. Current Research in Biological and Biomedical Sciences. University of Gour Banga, 2016
8. Workshop on Cancer: Genes, Habit, Disease. Paschim Banga Vigyan Mancha, Malda, 2015
9. Workshop on Cancer& Diabetes. Paschim Banga Vigyan Mancha, Malda, 2013

I do hereby declare the authenticity of all the information in my *curriculum vitae*.