

Dr. Ditipriya Hazra

Assistant Professor

Post Graduate Department of Biotechnology,
St. Xavier's College (Autonomous),
30, Mother Teresa Sarani, Kolkata-700016



Email: ditipriyahazra@gmail.com, ditypriyahazra@sxccal.edu

Research experience

Postdoctoral Research Associate, Department of Biochemistry University of Oxford, UK

Postdoctoral Researcher, École Polytechnique, Paris, France

Ph.D in Structural Biology, École Polytechnique, Paris, France

Academic qualification

- M. Tech, Biotechnology and Biochemical Engineering, Indian Institute of Technology Kharagpur (2013 - 2015)
- B. Tech, Biotechnology, Heritage Institute of technology (WBUT), Kolkata (2009-2013)

Research interest

- Investigating the molecular mechanism of bacterial chromosome segregation and the role of epitranscriptomic modulators in methylation dependent RNA degradation using X-ray crystallography, biophysical methods and molecular dynamics simulation

Publications as Corresponding Author

- Gupta, R., Ganguly, M., Jana, P., Roychowdhury, A. and **Hazra, D.**, 2025. Two Birds With One Stone: Targeting Wild Type and Drug Resistant Mutant ALK Using Brute Force Screening, MD Simulation and NCI. **IEEE Transactions on Computational Biology and Bioinformatics.**
- Ganguly, M., Maitra, H., Roychowdhury, A. and **Hazra, D.**, 2025. Drug designing against PfHT1 coupled with molecular dynamics in plasma membrane environment reveals, ligand-induced conformational change from open to closed state. **IEEE Transactions on Computational Biology and Bioinformatics.**
- Rahman, S., Bhattacharya, A., Jana, P., Ganguly, M., Das, A.K., **Hazra, D.** and Roychowdhury, A., 2024. Subtractive proteomics unravel the potency of D-Alanine-D-Alanine Ligase as the drug target for *Burkholderia pseudomallei*. Accepted in **International Journal of Biological Macromolecules.**
- **Hazra, D.**, Rahman, S., Ganguly, M., Das, A.K. and Roychowdhury, A., 2025. Molecular dynamics simulation shows enhanced stability in scaffold-based macromolecule, designed by protein engineering: a novel methodology adapted for converting Mtb Ag85A to a multi-epitope vaccine. **Journal of Molecular Modeling**, 31(3), p.84.
- Bhattacharya, D., Chakraborty, S., **Hazra, D.**, Roychowdhury, A., Karmakar, A. and Chattopadhyay, S., 2025. Molecular-level analysis of alkyl chain dependent voltage-induced microfluidic alcohol droplet actuation on Teflon/Pt/glass substrate: Revealing the unconventional directional movement. **Journal of Molecular Liquids**, 417, p.126576.

- Ganguly, M., Gupta, R., Roychowdhury, A. and **Hazra, D.**, 2025. De novo drug designing coupled with brute force screening and structure guided lead optimization gives highly specific inhibitor of METTL3: a potential cure for Acute Myeloid Leukaemia. **Journal of Biomolecular Structure and Dynamics**, 43(2), pp.1038-1051.
- Ghosh, R., Roychowdhury, A. and **Hazra, D.**, 2024. Use of Nanocellulose for Dental Applications. *Nanocellulose: A Biopolymer for Biomedical Applications*, pp.359-371.

Research Grants

- Discovering novel inhibitors against FAS-II dehydratase of *Mycobacterium tuberculosis* by brute force screening, de-novo drug designing and in-vitro studies, **Intramural Grant from St. Xavier's College, Kolkata 2023-25**
- Targeting chromosome segregation system of *Mycobacterium tuberculosis* to design structure-based inhibitors, **WB-DST, 2025 - 27**
- Developing new generation therapeutics against *Mycobacterium tuberculosis* using integrative structural biology and computer aided drug design coupled to DFT, **Intramural Grant from St. Xavier's College, Kolkata, 2026-28**

- Manna, S., Samal, P., Basak, R., Mitra, A., Roy, A.K., Kundu, R., Ahir, A., Roychowdhury, A. and **Hazra, D.**, 2023. Amentoflavone and methyl hesperidin, novel lead molecules targeting epitranscriptomic modulator in acute myeloid leukemia: in silico drug screening and molecular dynamics simulation approach. **Journal of Molecular Modeling**, 29(1), p.9.
- Mitra, A., Manna, S., Kundu, R., **Hazra, D.** and Roychowdhury, A., 2023. Brute Force Virtual Drug Screening with Molecular Dynamics Simulation and MM/PBSA to Find Potent Inhibitors of METTL16. **IEEE/ACM Transactions on Computational Biology and Bioinformatics**.
- **Hazra, D.** and Roychowdhury, A., 2022. Protein-Based Nanostructures. *Nanomaterials in Clinical Therapeutics: Synthesis and Applications*, pp.269-283. (Book chapter)
- Andric, V.†, Nevers, A.†, **Hazra, D.†**, Auxilien, S., Menant, A., Graille, M., Palancade, B. and Rougemaille, M., 2021. A scaffold lncRNA shapes the mitosis to meiosis switch. **Nature Communications**, 12(1), pp.1-12. †: **equal contribution**
- **Hazra, D.**, Andrić, V., Palancade, B., Rougemaille, M. and Graille, M., 2020. Formation of S. pombe Erh1 homodimer mediates gametogenic gene silencing and meiosis progression. **Scientific reports**, 10(1), pp.1-11.
- **Hazra, D.**, Chapat, C. and Graille, M., 2019. m6A mRNA Destiny: Chained to the rhYTHm by the YTH-Containing Proteins. **Genes**, 10(1), p.49.
- Biswas, R., Dutta, A., Dutta, D., **Hazra, D.**, Banerjee, D.R., Basak, A. and Das, A.K., 2015. Crystal structure of dehydratase component HadAB complex of mycobacterial FAS-II pathway. **Biochemical and biophysical research communications**, 458(2), pp.369-374.
- Chakraborty, B., Indra, S., **Hazra, D.**, Betai, R., Ray, L. and Basu, S., 2013. Performance study of chromium (VI) removal in presence of phenol in a continuous packed bed reactor by *Escherichia coli* isolated from east Calcutta wetlands. **BioMed Research International**, 2013.
- **PDB entry:** 4RV2, 6S2W, 6YYM, 6YYL

Projects

- **“Targeting chromosome segregation system of *Mycobacterium tuberculosis* to design structure-based inhibitors”** Under WBDST, Grant# 1052(Sanc.)/STBT-11012(12)/1/2024-WBSCST SEC