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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

- 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.

- 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 rYTHm 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.**, Betail, 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