Curriculum Vitae
Dr. Sunandan Mukherjee

1   Personal Information

Date of Birth:	May 16, 1986
Nationality:	Indian
Contact:	+48579226865
Email:	smukherjee@iimcb.gov.pl; sunandan2@gmail.com
Languages:	English, Hindi, Bengali
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2   Academic Qualifications

Ph.D., Computational Structural Biology   2012–2018
Indian Institute of Technology Kharagpur, India
Thesis: Understanding Structural and Physicochemical Basis of Protein-RNA and Protein-Protein Interactions
Focused on molecular dynamics simulations and structural modeling for protein-RNA/protein interactions.

M.Sc., Bioinformatics   2007–2009
Lovely Professional University, Punjab, India
Thesis: Insilico drug designing for breast cancer for BRCA-1 mutated carrier

B.Sc., Microbiology (Honours)   2004–2007
Bankura Sammilani College, University of Burdwan, India

3   Professional Experience

Postdoctoral Researcher   07/2018–Present
Laboratory of Bioinformatics and Protein Engineering, IIMCB, Warsaw, Poland
- Developed SimRNA-Cry for RNA 3D structure prediction using cryo-EM data.
- Collaborated with experimental groups to validate computational models.

Internal In-Depth Tester   12/2023–Present
Nucleic Acids Research, Oxford University Press
- Evaluated web server issues for nucleic acid research platforms.

Protein Engineering Specialist   05/2022–10/2022
Incircular BV, Amsterdam, Netherlands & IIMCB, Poland
- Conducted Monte Carlo dynamics simulations to assess protein thermal unfolding.

Institute Teaching Assistant   01/2016–01/2018
Department of Biotechnology, IIT Kharagpur, India
- Taught bioinformatics and computational structural biology courses.

Junior Research Fellow   06/2011–10/2011
All India Institute of Medical Sciences, New Delhi, India
- Evaluated real-time PCR assay for Chlamydia trachomatis detection.

4   Selected Publications (Full list available on Google Scholar and ORCiD)

1. Biela AD, ..., Mukherjee S, *et al.* (2025). "Determining the effects of pseudouridine incorporation on human tRNAs." *EMBO Journal* (In press).

2. Kant S, Nithin C, Mukherjee S, *et al.* (2025). "Protein-RNA docking benchmark v3.0 integrated with binding affinity." *Proteins: Structure, Function, and Bioinformatics* (In press).

3. Bu F, ..., Mukherjee S, *et al.* (2025). "RNA-Puzzles Round V: Blind predictions of 23 RNA structures." *Nature Methods*, 22, 399–411. `doi.org/10.1038/s41592-024-02543-9`.

4. Mukherjee S, *et al.* (2024). "Advances in the field of RNA 3D structure prediction and modeling, with purely theoretical approaches, and with the use of experimental data." *Structure*, 32(11), 1860–1876. `doi.org/10.1016/j.str.2024.08.015`.

5. Rocha de Moura T, ..., Mukherjee S, *et al.* (2024). "Conserved structures and dynamics in 5'-proximal regions of Betacoronavirus RNA genomes." *Nucleic Acids Research*, gkae144.

6. Niemyska W, Mukherjee S, *et al.* (2024). "Discovery of a Trefoil Knot in the RydC RNA: Challenging Previous Notions of RNA Topology." *Journal of Molecular Biology*, 436(6).

7. Cappannini A, ..., Mukherjee S, *et al.* (2024). "MODOMICS: a database of RNA modifications and related information. 2023 update." *Nucleic Acids Research*, 52(D1), D239–D244.

8. Chojnowski G, ..., Mukherjee S, *et al.* (2023). "RNA 3D structure modeling by fragment assembly with small-angle X-ray scattering restraints." *Bioinformatics*, 39(9), btad527.

9. Luo B, ..., Mukherjee S, *et al.* (2023). "Cryo-EM reveals dynamics of Tetrahymena group I intron self-splicing." *Nature Catalysis*, 6, 298–309.

10. Jia X, ..., Mukherjee S, *et al.* (2023). "Structural basis of sRNA RsmZ regulation of Pseudomonas aeruginosa virulence." *Cell Research*, 33, 328–330.

5   Skills and Expertise

Computational & Molecular Modeling:
- Advanced 3D structural modeling of nucleic acids and protein complexes.
- Molecular dynamics (Amber), Monte Carlo, and free energy calculations.
- Developed SimRNA-Cry for RNA structure modeling with cryo-EM data.
- Macromolecular docking and sequence alignment.

Programming & Data Science:
- Languages: Python, C/C++, Bash, R (beginner).
- Machine Learning: Scikit-learn, TensorFlow.
- Workflow Management: Nextflow, Snakemake.
- Version Control: Git (Gitlab, Github).

6   Grants and Awards

- **2023** EMBO Childcare Grant
- **2022** SONATA 17 Grant (691,252 PLN), National Science Centre, Poland
- **2019** Poster Award, The RNA Society Meeting, Krakow, Poland
- **2019** Travel Fellowship, The RNA Society Meeting, Krakow, Poland
- **2012, 2014** Junior/Senior Research Fellowship, CSIR-UGC, India

7   Oral Presentations

- "Integrated modeling of RNA 3D structures with SimRNA-Cry," EMBO Sectorial Meeting, Würzburg, Germany, April 2025.
- "Modeling 3D structure of RNA using low resolution cryo-EM maps with SimRNA-Cry," EMBO Workshop, Heidelberg, Germany, December 2023.
- "SimRNA-Cry: a tool for modeling of RNA molecules using maps from cryo-electron microscopy," Polish Bioinformatics Society Symposium, Warsaw, Poland, September 2022.

8   Declaration

I hereby declare that the information provided is accurate and truthful to the best of my knowledge. I consent to the processing of my personal data for recruitment and conference purposes.

Sunandan Mukherjee
Warsaw, Poland