Nayanika Sengupta

Senior Research Fellow

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Educational Qualifications:

Year	University/Council	Degree	Specialization	Percent/CGPA
2018-present	Indian Institute of Science	Ph.D.	Science	8.7 CGPA (coursework)
2016-2018	University of Calcutta	M.Sc.	Biotechnology	85.1% (Gold Medallist, Convocation pending)
2013-2016	St. Xavier's College (Autonomous), Kolkata	B.Sc.	Microbiology	79.61% 8.13 CGPA
2013	Council for the Indian School Certificate Examinations (CISCE)	XII	Science	95.5%
2011	Council for the Indian School Certificate Examinations (CISCE)	X	Science	96.6% (First in school)

Research and Laboratory Experience:

1) 2018- present: **Graduate Research Student**, Laboratory of Dr. Somnath Dutta, **Molecular Biophysics Unit, IISc**. Ph.D. topic- Biophysical characterization of Mycobacterial Type VII Secretion System and β-pore forming toxins using Single Particle Cryo-Electron Microscopy.

2) 2018: **Industrial Trainee**, Research and Development Department, **GCC Biotech (I) Pvt. Ltd., West Bengal**. Duration: 1 month.

Project title- Overexpression and purification of RNase-free Reverse Transcriptase enzyme for cDNA synthesis kit.

3) 2017: **Summer Trainee**, Laboratory of **Prof. Saumitra Das**, **Department of Microbiology and Cell Biology, IISc.**
   Project title- Overexpression and purification of recombinant HCV-core protein to study protein-protein interaction.

4) 2015: Summer project under the guidance of **Dr. Mahashweta Mitra Ghosh, St. Xavier's College, Kolkata.**
   Project title- Rice plant growth in the presence of plant growth promoting bacteria.

5) 2013: Summer project under the guidance of **Dr. Arup Kumar Mitra, St. Xavier's College, Kolkata.**
   Project title- Heavy metal leaching by a novel *Aspergillus sp.* Isolated from a polluted site.

Academic Awards:

1) All India Rank 120 in Graduate Aptitude Test in Engineering (GATE), Life Sciences, 2018
2) All India Rank 53 in CSIR-UGC National Eligibility Test (NET) JRF and LS, Life Sciences, 2018

Professional Memberships:

1) Life Member of Electron Microscopy Society of India

Conferences Attended:

1) Poster presentation, titled "A Cryo-Electron Microscopic study to identify the pore formation mechanism of membrane bilayer bound *Vibrio cholerae* Cytolysin". **PSB Symposium** "**Frontiers in Bioimaging**", 1-2 July 2021
2) Poster presentation, titled "Membrane Bound Vibrio cholerae Cytolysin: A Cryo-Electron Microscopic Study To Identify The Pore Formation Mechanism". **Virtual Keystone Symposia: Frontiers in Cryo-Electron Microscopy | EK19**, 3-4 February 2021

3) Speaker, **CEM3DIP 2020: EMBO Practical Course on Single Particle CryoEM of macromolecular assemblies and cellular tomography**, 19-30 January 2020.
4) Oral Presentation, titled "Membrane Bound Vibrio cholerae Cytolysin: A Cryo-Electron Microscopic Study To Identify The Pore Formation Mechanism". **MBU In-House Symposium 2019**, 7 September 2019. **Awarded First Runner-Up**
5) Oral Presentation, titled "Protein CoAlation: a redox regulated protein modification of Coenzyme A in mammalian cells". **Guha Centre for Genetic Engineering and Biotechnology Annual Day 2018**, 28 March 2018. **Awarded First Runner-Up**.
6) Poster Presentation, titled "Rice Plant Growth In The Presence Of Plant Growth Promoting Bacteria". **103rd Indian Science Congress.** 3-7 January 2016.

List of Publications:

1) **Sengupta, N.**, Mondal, A. K., Mishra, S., Chattopadhyay, K., & Dutta, S. (2021). Single-particle cryo-EM reveals conformational variability of the oligomeric VCC β-barrel pore in a lipid bilayer. The Journal of cell biology, 220(12), e202102035. https://doi.org/10.1083/jcb.202102035
2) Mittal, N., **Sengupta, N.**, Malladi, S. K., Reddy, P., Bhat, M., Rajmani, R.S., Sedeyn, K., Saelens, X., Dutta, S., and Varadarajan, R. (2021). Protective Efficacy of Recombinant Influenza Hemagglutinin Ectodomain Fusions. *Viruses* 13, no. 9: 1710. https://doi.org/10.3390/v13091710
3) Pramanick, I.[#], **Sengupta, N.**[#], Mishra, S., Pandey, S., Girish, N., Das, A., & Dutta, S. (2021). Conformational flexibility and structural variability of SARS-CoV2 S protein. *Structure (London, England: 1993)*, *29*(8), 834–845.e5. https://doi.org/10.1016/j.str.2021.04.006
4) Kumar, A., **Sengupta, N.**, & Dutta, S. (2021). Simplified Approach for Preparing Graphene Oxide TEM Grids for Stained and Vitrified Biomolecules. *Nanomaterials (Basel, Switzerland)*, *11*(3), 643. https://doi.org/10.3390/nano11030643
5) Mondal, A. K., Verma, P., **Sengupta, N.**, Dutta, S., Bhushan Pandit, S., & Chattopadhyay, K. (2021). Tyrosine in the hinge region of the pore-forming motif regulates oligomeric β-barrel pore formation by Vibrio cholerae cytolysin. *Molecular microbiology*, *115*(4), 508–525. https://doi.org/10.1111/mmi.14631
6) Bhattacharya, N., Pal, A., Khan, P., Basu, M., Chakraborty, S., **Sengupta, N.**, and Mitra, A.K. (2014) Heavy Metal Leaching By A Novel *Aspergillus sp*. isolated from a Polluted Site. World Journal of Pharmaceutical Research. Volume 3, Issue 8, 597-611.