Name: Dr. Tanaya Chatterjee

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Profile:

I have been working as an independent scientist in Department of Science and Technology (DST), Govt. of India funded projects as Principal Investigator. After successful completion of four such projects, I am working as a DST WIDUSHI Senior Scientist at Bose Institute, Kolkata. My present research deals with understanding of Aβ42 pathogenesis and its mitigation by a repair enzyme. Besides I have specialization for studying protein–protein, protein–peptide and protein–nanoparticle interactions using advanced biophysical techniques. I have prior experience in studying *Vibrio cholerae* proteins, the pathogen responsible for cholera. The proteins studied were Accessory cholera enterotoxin (Ace) and ToxR, among which Ace is an important member of the "virulence cassette" of *V. cholerae*. Gold nanoparticles of varying sizes and shapes were used to study structural and functional modifications of the Ace toxin using biophysical techniques. These findings were further validated in mouse model.

Key Skills:

- Interaction analysis involving protein–protein, protein-peptide, protein-nanoparticle systems
- Biophysical characterization (fluorescence spectroscopy, dynamic light scattering, isothermal titration calorimetry, far-UV CD etc.)
- Neurodegenerative disease models
- Structural and functional characterization of bacterial proteins
- Experimental design & troubleshooting
- Data interpretation & scientific reporting

Professional Experience:

Current position: Working as DST WIDUSHI Senior Scientist at Bose Institute, Kolkata (September 2024-continuing)

- Designed and executed studies on protein-peptide, protein-small molecule interactions relevant to neurodegenerative diseases.
- Applied biophysical techniques to characterize binding, stability, and structural changes.
- Investigated protein–nanoparticle interaction for functional and mechanistic insights.
- Collaborated across disciplines, contributing to project strategy and problem-solving.
- Studied *Vibrio cholerae* proteins using microbiological and biochemical approaches.
- Performed protein expression, purification, and functional assays using recombinant proteins

Technical Expertise:

- **Biophysical techniques:** ITC, CD, fluorescence, DLS, SPR, etc.
- **Lab Techniques:** Protein purification, molecular biology, microbiological assays
- **Data Tools:** Software, programming, or analysis tools

Selected Publications:

1. **Tanaya Chatterjee***, Rimi Mukherjee, Gaurav Das, Arumay Pal, Sudipta Bag, Barun K. Chatterjee and Pinak Chakrabarti. The Binding of Protein *L*-isoaspartyl Methyltransferase (PIMT) to Tubulin and Disruption of Microtubule Assembly Leading to Tumor Regression. ***Biochemistry*** 64, 2765–2777 (2025) https://doi.org/10.1021/acs.biochem.5c00087
2. **Tanaya Chatterjee***, Gaurav Das, Barun K Chatterjee, Surajit Ghosh and Pinak Chakrabarti. The Role of Protein-L-Isoaspartyl Methyltransferase (PIMT) in the Suppression of Toxicity of the Oligomeric Form of Aβ42, in Addition to the Inhibition of its Fibrillization. ***ACS Chem Neuro*** (2023) doi.org/10.1021/acschemneuro.3c00281

3. **Tanaya Chatterjee***, Tultul Saha, Paramita Sarkar, Kazi Mirajul Hoque and Pinak Chakrabarti. The gold nanoparticle reduces *Vibrio cholerae* pathogenesis by inhibition of biofilm formation and disruption of the production and structure of cholera toxin. ***Colloids Surf B Biointerfaces***. (2021) DOI: 10.1016/j.colsurfb.2021.111811

4. **Tanaya Chatterjee***, Gaurav Das, Barun K Chatterjee, Jasmita Dhar, Surajit Ghosh and Pinak Chakrabarti. The role of isoaspartate in fibrillation and its prevention by Protein-L-isoaspartyl methyltransferase. ***Biochim. Biophys. Acta. Gen Subj***. (2020) 1864, 129500.

5. **Tanaya Chatterjee***, Barun K Chatterjee, Tultul Saha, Kazi Mirajul Hoque and Pinak Chakrabarti. Structure and function of Vibrio cholerae Accessory cholera enterotoxin in presence of gold nanoparticles: dependence on morphology. ***Biochim. Biophys. Acta. Gen Subj***. (2017) 1861, 977-986.