Shinjinee Dasgupta (Sengupta), Ph.D

Associate Professor
DBT /Wellcome Trust India Alliance Early Career Fellow (2019-2024)
Specialization. **Amyloid Biology, Cancer Research, Protein Biochemistry, Synthetic/molecular Biology**
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Dr. Shinjinee Dasgupta (Sengupta) completed her Ph.D. from the CSIR-Indian Institute of Chemical Biology (IICB), Kolkata. Soon after, she joined the Indian Institute of Technology (IIT) Bombay as an institutional postdoctoral researcher, where she began exploring one of the most fascinating puzzles in biology; the amyloid formation of the tumor suppressor protein p53 and its surprising role in triggering cancer. Her curiosity and ground breaking work led to a patent on "Amyloid-mediated cell line transformation", and she has published in high-impact international journals including Nature Cell Death and Differentiation. Dr. Dasgupta expanded her horizons by working as a Senior Scientist at the DBT Pan-IIT Center, IIT Bombay, collaborating with engineers to harness synthetic biology for sustainable energy solutions. She developed microbes that could produce biofuels and value-added chemicals, publishing widely in journals like Biotechnology Advances, Biotechnology for Biofuels, and Scientific Reports. She also filed another patent on an innovative method to produce succinate from engineered cyanobacteria. Her contributions were recognized when she was awarded the prestigious DBT/Wellcome Trust India Alliance Fellowship; a testament to her excellence and vision in translational research. At present, her lab is deeply engaged in cancer research using multi-omics approaches (proteomics, metabolomics, and transcriptomics) to decode how protein misfolding and aggregation rewire cancer signaling networks. By integrating clinical patient samples with advanced 3D culture systems such as spheroids and organoids, her group is creating more realistic models to study how p53 amyloids promote cancer progression and metastasis. Importantly, they are also screening anti-aggregation compounds as potential therapeutics to target these pathways. With her diverse journey from cancer biology to biofuel innovation, and from patents to cutting-edge therapeutics, Dr. Dasgupta's career shows how science can be both deeply fundamental and powerfully translational.

Ongoing Research Projects

DBT Wellcome Trust India Alliance funded by Department of Biotechnology and Wellcome Trust (UK) for research project entitled **"*Establishing the relationship of p53 mutations and amyloid formation: A new insight in Cancer biology and therapeutics*".**

DST-CRG funded project titled ***"Investigating the role of p53 amyloid in the tumor associated macrophage polarization and tumor microenvironment of colorectal carcinoma"***

Selected Publications

1. Shivani Jaiswal, Vivek Mishra, Srija Majumder, Pramod Wangikar, **Shinjinee Sengupta***, Metabolomic profiling reveals grade-specific niacinamide accumulation and its therapeutic Potential via SIRT1-CD38-EMT axis modulation in cervical cancer progression, BBA - Molecular Cell Research, 2025, In Press)* corresponding author (**IF-4.7**)

2. Debalina Datta, Ambuja Navalkar, Arunima Sakunthala, Ajoy Paul, Komal Patel, Shalaka Masurkar, Laxmikant Gadhe, **Shinjinee Sengupta**, Manisha Poudyal, Jyoti Devi, Ajay Singh Sawner, Pradeep Kadu, Ranjit Shaw, Satyaprakash Pandey, Semanti Mukherjee, Nitisha Gahlot, Kundan Sengupta, Samir K Maji. Nucleo-cytoplasmic environment modulates spatio-temporal p53 phase separation. Science Advances, 2024, Vol 10, Issue 50, eads0427. (**IF-13.7**)

3. Shinjinee Sengupta, Namrata Singh, Ajoy Paul, Debalina Datta, Debdeep Chatterjee, Semanti Mukherjee, Laxmikant Gadhe, Jyoti Devi, Yeshwant M, Mohit Kumar Jolly, and Samir Maji, p53 amyloid pathology is correlated with higher cancer grades irrespective of the mutant or wildtype forms, **Journal of Cell Science**, 2023, 136 (17): jcs261017. (**IF- 5.2]**

4. Shivi Chauhan#, Shivani Jaiswal#, Vibhuti Jakhmola#, Bhavana Singh, Sujata Bhattacharya, Manoj Garg+, **Shinjinee Sengupta*** Potential Role of p53 Deregulation in Modulating Immune Responses in Human Malignancies: A Paradigm to Develop Immunotherapy, **Cancer Letters**, 2024, Volume 588, 28 April 2024, 216766 (**IF-9.7**)*** corresponding author**

5. Shinjinee Sengupta, Deepti Sahasrabuddhe and Pramod P. Wangikar, Transporter Engineering for the development of Cyanobacteria as cell factories: A Text Analytics guided survey, ***Biotechnology Advances***, **2021**, Volume 54, 107816. **[IF- 14.2]**

6. Shinjinee Sengupta, Damini Jaiswal, Annesha Sengupta, Shikha Shah, Shruti Gadagkar and Pramod P. Wangikar, Metabolic engineering of a fast-growing cyanobacterium *Synechococcus elongatus* PCC 11801 for photoautotrophic production of succinic acid, **Biotechnology for Biofuels**, **2020**, 13: 89. **[IF- 6.4]**

7. Saikat Ghosh#, Shimul Salot#, **Shinjinee Sengupta**#, Ambuja Navalkar, Dhiman Ghosh, Reeba Jacob, Subhadeep Das, Rakesh Kumar, Narendra Nath Jha, Shruti Sahay, Surabhi Mehra, Santanu K. Ghosh, Mamata Kombrabail, G Krishnamoorthy, Pradip Chaudhari,and Samir K Maji*. p53 amyloid formation leading to its loss of function: Implication in cancer pathogenesis. ***Cell death and Differentiation.*** # **Equal contribution**. 24, **2017**, pages 1784–1798. **[IF- 15.5]**

Patents

1. Patent granted on “Amyloid mediated cell line transformation”. Inventors: Samir K Maji, Saikat K Ghosh, **Shinjinee Sengupta**, Shimul Salot, Ambuja Navalkar, Subhadeep Das, Reeba S Jacob. **2021**, **Patent no. 361011.**
2. Patent filled on “Method for photoautotrophic production of succinate using recombinant *Synechococcus* sp” Pramod Wangikar, **Shinjinee Sengupta**, Deepti Shrahastrabudhi, Swati Madhu and Damini Jaiswal. **2021**, **Patent application no. 202121022027.**