



Department of Biotechnology

INDIAN INSTITUTE OF TECHNOLOGY MADRAS

Sardar Patel Road, Adyar, Chennai – 600 036.

List of PhD project vacancies for July 2025 session

Biological Engineering		
1	Shantanu Pradhan	Expansion microscopy
2	Richa Karmakar	Modeling Cellular Chemotaxis: A Computational Perspective
3	Athi Narayanan N	1) Bacterial stress response proteins as novel antimicrobials: Functional characterization of H-NS family members. 2) DNA binding and bending modes of oncogenic transcription factors
4	Greeshma Thrivikraman	Anisotropic microgels as injectable formulation for tissue engineering applications.
5	M. Hamsa Priya	Modelling of Liquid-Liquid Phase Separation of Biomolecules
6	Smita Srivastava	Rational Metabolic Engineering of <i>Crocus sativus</i> for enhanced Apocarotenoids production.

Biological Sciences		
1	Shantanu Pradhan	Insulin resistance and breast cancer
2	Baskar	1) Molecular genetics of tip organizer establishment in <i>Dictyostelium</i> . 2) Molecular mechanisms of plant hormone induced changes in meiotic recombination rates.
3	Sanjib Senapati	Drug designing and reformulation through detailed study of Protein-Ligand interactions
4	Arumugam Rajavelu	Epigenetic regulation of antigen switching in malaria parasite
5	Nitish Mahapatra	Molecular and genetic bases of cardiometabolic diseases
6	Himanshu Sinha	1) Role of Ribosomal Protein Variants in Phenotypic Plasticity; 2) Role of Ribosomal Protein Variants in Pan-Transcriptome and Pan-Proteome Variation
7	Mamata Bangera	Adaptation of plant cytoskeleton to environmental stress
8	Vani J	Novel cellular receptors at the neuro immuno interface



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Computational Biology		
1	Sanjib Senapati	Improvising drug modelling strategies through combined AI/ML, Molecular Dynamics Simulations, and quantum computing
2	Richa Karmakar	Computational Modeling of Collective Chemotaxis Dynamics
3	M. Hamsa Priya	1) Computational Investigation of Peptide Self-assembly and Aggregation 2) Machine Learning Guided Biomolecular Simulations
4	N Manoj	Molecular Evolution of G protein-coupled receptors
5	Meiyappan Lakshmanan	Combined microbiome-metabolome analysis for gestational diabetes biomarker identification
6	Himanshu Sinha	1) Pan Genome-Scale Metabolic Modelling of Large Yeast Population 2) Role of Ribosomal Protein Variants in PanTranscriptome and Pan-Proteome Variation
7	Vani J	Virus infection instigated autoimmune reactions
8	Athi Naganathan N	DNA binding and bending modes of oncogenic transcription factors

List of MS project vacancies for July 2025 session

Biological Engineering		
1	Shantanu Pradhan	Expansion microscopy
2	Vignesh Muthuvijayan	Biomaterial-based Piezoelectric Devices for Next-Generation Ocular Sensing and Diagnostics
3	Richa Karmakar	Modeling Cellular Chemotaxis: A Computational Perspective
4	Guhan Jayaraman	Engineering of platform microbial strains for production of bulk chemicals from lignocellulosic biomass
5	Greeshma Thrivikraman	Neuroimmunovascular interactions in an organ-on-a-chip platform
6	M. Hamsa Priya	Understanding Glycan Conformational Dynamics



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7	Smita Srivastava	Fed-batch cultivation of Nardostachys jatamansi plant cells in a Stirred Bioreactor.
8	Meiyappan Lakshmanan	Bioprocess establishment for cultivated goat meat manufacturing

Biological Sciences

1	Shantanu Pradhan	Insulin resistance and breast cancer
2	Vignesh Muthuvijayan	Biomaterial-based Piezoelectric Devices for Next-Generation Ocular Sensing and Diagnostics
3	Arumugam Rajavelu	Discovery of therapeutic drug targets in parasites.
4	Himanshu Sinha	Role of Ribosomal Protein Variants in Phenotypic Plasticity
5	Mamata Bangera	Role of tubulin isoforms in determining microtubule architecture in neurons

Computational Biology

1	Sanjib Senapati	Better correlating protein structure-function through its dynamics: Molecular dynamics simulations and quantum computing of proteins
2	Richa Karmakar	Modeling Cellular Chemotaxis: A Computational Perspective
3	Michael Gromiha	Investigating disease mutations in the interfaces of protein complexes
4	M. Hamsa Priya	Machine Learning for MultiOmics Data Analysis and Prediction
5	N Manoj	Molecular Evolution of G protein-coupled Receptors
6	Meiyappan Lakshmanan	Multi-omic data driven investigation of the evolutionary conservation and divergence on the role epigenome in transcription in animals
7	Himanshu Sinha	Role of Ribosomal Protein Variants in PanTranscriptome and Pan-Proteome Variation
8	Vani J	virus infection induced autoimmune diseases