Department of Biotechnology
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
Sardar Patel Road, Adyar, Chennai – 600 036.

List of PhD project vacancies for January 2027 session

Biological Engineering		
1	Mamata Bangera	Molecular insights into adaptation of plant cytoskeleton to environmental stress
2	Smita Srivastava	1. Scale-up and pilot-scale validation of the plant cell based biomass for the production of anti-atherosclerotic APIs from the suspension cultures of *Swertia corymbosa* 2. Scale-up and pilot-scale validation of the plant cell based biomass for the production of cyclotides from the suspension cultures of Viola odorata
3	Kesavan V	Antibody drug conjugate
4	Sathyanarayana N. Gummadi	Biomass to xylitol and other metabolites
5	Shantanu Pradhan	Cancer cell morphodynamics in complex 3D microenvironments

Biological Sciences		
1	Sanjib Senapati	1. Reinventing the Drug Formulation Technology for Improved Onset of Action and Lower Dose Requirements 2. Stabilizing Nucleic Acids and Vaccines at Room Temperature using a Novel Class of Green Solvents
2	Suresh Kumar Rayala	Targeting tumour microenvironment in Glioblastomas
3	Kesavan V	Development of covalent inhibitors for Neurodegenerative disorders
4	Mamata Bangera	Molecular insights into adaptation of plant cytoskeleton to environmental stress
5	Santhosh Sethuramanujam	1. Synaptic mechanisms underlying neuronal computations in retinal ganglion cells using single-cell patch-clamp recordings. 2. Investigating how neurons in the accessory optic system compute global motion using multi-electrode arrays.
6	Amal K Bera	Understanding the role of microproteins in neurological diseases
7	Vani J	Understanding novel immune receptors in respiratory infections
8	Madhulika Dixit	1. Protein tyrosine phosphatases in endothelial function. 2. Molecular mechanisms governing endothelial dysfunction

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Computational Biology		
1	M. Hamsa Priya	ML Guided Conformational Sampling of Glycans
2	Michael Gromiha	AI/ML based methods for detecting cancer mutations
3	Sanjib Senapati	1. Reinventing the Drug Formulation Technology for Improved Onset of Action and Lower Dose Requirements 2. Stabilizing Nucleic Acids and Vaccines at Room Temperature using a Novel Class of Green Solvents
4	Vani J	Studies on viral proteins and Autoimmunity
5	Anushka Gupta	Identifying non-invasive, blood-based biomarker for fibrosis staging in MASLD using single-cell RNA-sequencing

List of MS project vacancies for January 2027 session

Biological Engineering		
1	Sathyanarayana N. Gummadi	Microbial and enzymatic process for caffeine removal
2	Madhulika Dixit	Mathematical modelling of cardiovascular diseases
3	Smita Srivastava	1. Effect of gamma radiation on camptothecin production by the endophyte *Alternaria burnsii* 2. Effect of host-plant associated strictosidine synthase expression on camptothecin production by the endophyte *Alternaria burnsii*
4	Shantanu Pradhan	Cancer cell morphodynamics in complex 3D microenvironments
5	Meiyappan Lakshmanan	Development of recombinant growth factors to supplement for serum-elimination in goat cell cultures

Biological Sciences		
1	Sathyanarayana N. Gummadi	Overexpression and characterization of industrial enzymes
2	Santhosh Sethuramanujam	Therapeutic potential of GABA potentiators in combating vision impairments in diabetes
3	Vani J	Studies on host-pathogen interactions in respiratory infections

4	Sanjib Senapati	1. Reinventing the Drug Formulation Technology for Improved Onset of Action and Lower Dose Requirements 2. Stabilizing Nucleic Acids and Vaccines at Room Temperature using a Novel Class of Green Solvents

Computational Biology		
1	Michael Gromiha	Protein stability upon multiple mutations and the effect of additivity
2	M. Hamsa Priya	AI Geared Protein Engineering
3	Sanjib Senapati	1. Structure-guided Design of Novel Class of Drugs using Machine Learning and Molecular Dynamics (MD) Simulations 2. Understanding the Disease Mechanisms through Machine Learning, Molecular Dynamics (MD) Simulations, and In-vitro Testing
4	Madhulika Dixit	In silico analysis of protein-protein interactions in cardiovascular diseases
5	Vani J	Structural studies of viral proteins
6	Himanshu Sinha	Development of AI/ML models for pre-eclampsia and gestational diabetes for Indian pregnant women
7	Anushka Gupta	Benchmarking tools for predicting single-cell resolution gene expression from H&E images