

**Department of Biotechnology, IIT Madras**  
**PhD admissions July 2023**  
**Tentative list of PhD Project titles**

**1) CB- Computational Biology Stream**

S.No	Faculty Name	Project title(s), Number of vacancies
1	Santhosh Sethuramanujam	Modeling the computations performed by direction selective neurons in the retina (1 student)
2	M. Hamsa Priya	Molecular Modeling of Protein Self-assembly and Aggregation (1 student)
3	Michael Gromiha	1. Integrating sequence and structural features of membrane proteins to understand and predict their stabilities and binding affinities (1 student). 2. Understanding the drug resistance of wild-type and insertion mutant of HIV protease type C with drugs and applications to design potential inhibitors (1 student)
4	Karthik Raman	Cancer genomics: ML approaches to identifying key mutations in cancer genomes responsible for radio-sensitivity Microbiome systems biology: ML and network science approaches to identify keystone species and network structure of environmental microbiomes Microbiome systems biology: Modelling the evolution of microbial communities (with applications to understand microbial succession and therapeutic strategies) (1 Student)
5	Srinivasa Chakravarthy	Developing an integral model of Deep Brain stimulation for Parkinson's disease; Developing a Cortiohippocampal model for Alzheimer's disease (2 students)
6	Vani Janakiraman	Understanding machinery in bacterial communication (2 students)

**2) BS- Biological Sciences Stream**

S.No	Faculty Name	Project title(s), Number of vacancies
1	A Gopala Krishna	Structure-function relationship of calcium-binding proteins (1 student)
2	Ninitha A.J	Impact of diabetes on neurodegeneration (1 student)
3	Arumugam Rajavelu	Functions of epigenetic reader complexes in malaria parasite virulence (1 student)
4	R. Baskar	1. Molecular mechanisms of tip organizer formation in Dictyostelium (1 student) 2. Study on chemotaxis towards bacterial volatiles (1 student)
5	Madhulika Dixit	Functional characterization of endothelial PTPN12 (1 student)
6	K.Subramaniam	Regulation of germline stem cells in C. elegans (1 student)
7	Nitish Mahapatra	Genetic and molecular bases of cardiometabolic disease (1 student)
8	Nathiya	Identification of novel therapeutic targets for Pancreatic neuroendocrine tumours (1 student)
9	Vani Janakiraman	Studies on host-pathogen interactions in respiratory bacterial infections (1 student)

**3) BE- Biological Engineering Stream**

S.No	Faculty Name	Project title(s), Number of vacancies
1	G.K Sureshkumar	Cultivation of high value biologicals under microgravity (experiments and modeling) (1 student)
2	Athi Narayanan N	Bacterial swarming through the lens of protein structure-function-folding relationship (1 student)
3	Richa Karmakar	1. Computational analysis of cell-cell interaction during chemotaxis (1 student) 2. Lab-on-chip technology for biomedical applications (1 student)
4	Smita Srivastava	Metabolic engineering in Cannabis sativa for enhanced Cannabinoids biosynthesis and reduced THC (1 student)
5	Greeshma Thri vikraman	Microfabrication approaches to design neuroimmune-cardiovascular interface on a chip (1 student)
6	Krithika Ravi	Microbial conversion of lignin to value-added products (1 student)