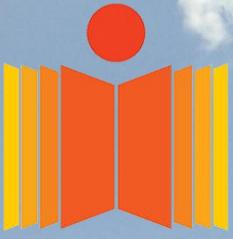


# Department of Biotechnology

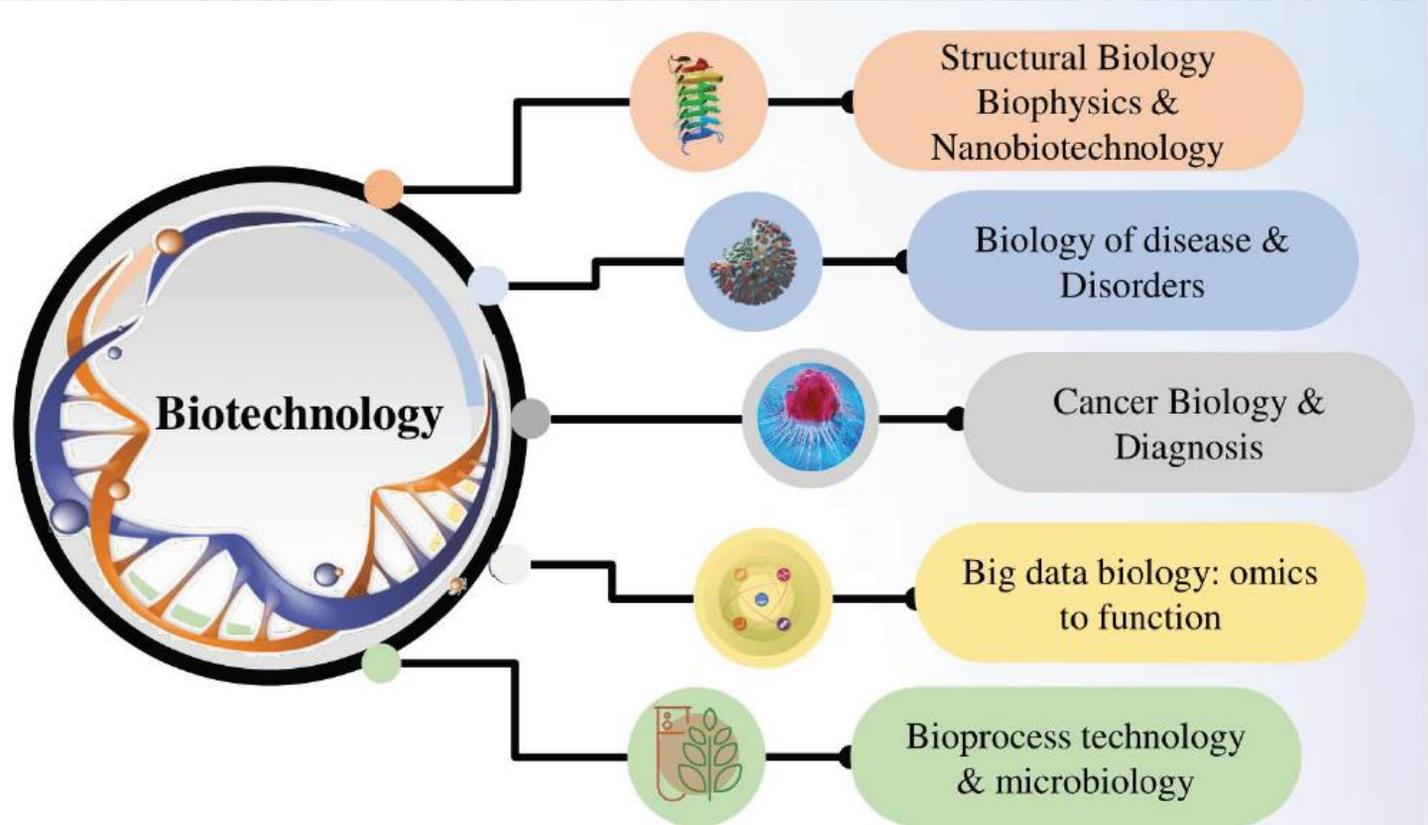
## Indian Institute of Technology Hyderabad



भारतीय प्रौद्योगिकी संस्थान हैदराबाद  
Indian Institute of Technology Hyderabad

### Ph.D. Admission Brochure [July 2024]

Webpage: <https://biotech.iith.ac.in/>



# Department of Biotechnology

## Ph.D. Admission – July 2024

The Department of Biotechnology, established in 2010, offers outstanding research programs in the frontier areas of Biotechnology encompassing both applied and basic research spanning various experimental and computational frontiers: NMR Spectroscopy, X-ray Crystallography, Computational Biology, Circadian Biology and Chronomedicine, Neurodegenerative Diseases, Cell Signaling: Calcium signaling in Cancer, Xenotransplantation, Protein Misfolding Diseases, Infectious Diseases, HIV Biology, Cancer Biology, Chromosome Dynamics and Gene Regulation, DNA Repair, Molecular Mechanisms of Diseases using Zebrafish Animal Model, Advanced Bioimaging, Neuroscience, RNA Biology, Genomics and Epitranscriptomics, Proteomics, Drug Design, Computational genomics, Membrane Biophysics, Biomolecular Simulations, Computational Virology and Enzyme Engineering, Bioprocess Technology, Biofuels and Biochemicals, Waste Valorization and Circular Economy, Microbial genomics and evolution, Plant Genomics, Plant metagenomics, Plant-microbe interactions, Systems biology, Biological networks, Machine learning, Metabolism and Transcriptional regulation. Research activities in the department are funded by national agencies such as DBT, DST, ICMR, CSIR, etc.

The mission of the Ph.D. program is to develop a new generation of scientific leaders with scientific vigor, critical thinking, ethics, and multitasking managerial skills to thrive in the fast-paced technology-driven industry and academia. We foster innovations through cutting-edge technologies and interdisciplinary research.

# Research Areas

**Applications are invited from suitably qualified & motivated candidates for admission to the Ph.D. program in the Department of Biotechnology, IITH, in the following research areas:**

Research Area	Faculty
Molecular characterization of DNA alkylation damage repair enzymes, Role of DNA alkylation in cancer, autoimmune and inflammatory diseases.	<b>Dr. Anindya Roy</b>
Human-Virus protein-protein interaction.	<b>Dr. N.K. Raghavendra</b>
Exploring the molecular mechanisms of diseases by in vitro and <i>in silico</i> approaches: Antimicrobial resistance, neurodegenerative disorders, intrinsically disordered proteins in human diseases with emphasis on cancer, small molecule ligand screening, microbial genomics & biomolecular interaction prediction using machine learning	<b>Dr. Thenmalarchelvi Rathinavelan</b>
Protein phase separation and misfolding in Neurodegeneration and Cancer; Intrinsically disordered proteins; Role of chaperones and Oxidative stress in proteinopathies; Drug-discovery for neurodegenerative diseases.	<b>Dr. Basant K. Patel</b>
Characterization of cancer drug targets, Epigenetics, and DNA repair, Drug/inhibitor design, Vaccine design, X-ray crystallography, Biophysics and biochemistry, Computational biology, phase separation and hydrogel design.	<b>Dr. Rajakumara Eerappa</b>
Investigating disease/toxicity mechanisms using in-vitro and in-vivo models	<b>Dr. Anamika Bhargava</b>
Cancer genomics and biomarker discovery, 3D cancer model development, Drug resistance and repurposing, Long noncoding RNAs, Alternative splicing and RNA metabolism in cancer, Protein Engineering.	<b>Dr. Ashish Misra</b>
Circadian rhythm, cancer, mechanism of drug action, clinical proteomics, mass spectrometry.	<b>Dr. Sandipan Ray</b>

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# Research Areas

**Applications are invited from suitably qualified & motivated candidates for admission to the Ph.D. program in the Department of Biotechnology, IITH, in the following research areas:**

Research Area	Faculty
Chromosome dynamics and genetic disorders, single-molecule imaging, chromatin remodeling, cancer therapy target aurora kinase B, cell division, gene regulation, advanced fluorescence microscopy.	<b>Dr. Gunjan Mehta</b>
Computational genomics and transcriptomics, diagnostic and prognostic biomarkers of cancer, epigenomics, drug discovery, MRI based radiogenomics, big data analytics in health/biology, AI/ML based methods/tools development, digital medicine.	<b>Dr. Rahul Kumar</b>
Biomolecular modeling and simulations, DNA Nanotechnology, Nanoparticles interaction with biological matter, Lipid-DNA interaction, Computational biophysics, Computational Virology.	<b>Dr. Himanshu Joshi</b>
Biofuels, Biochemicals, Biomaterials, Nanobiotechnology, Bioprocess technology, Downstream processing, Hydrothermal Liquefaction, Waste valorization and Circular economy.	<b>Dr. Althuri Avanthi</b>
Microbial genomics, Evolutionary biology, Microbial diversity, Plant Genomics, Plant metagenomics, Microbiome, Plant-microbe interactions, Computational biology, prediction webservers.	<b>Dr. Gaurav Sharma</b>
Computational systems biology, Bioinformatics, Omics data-driven statistical and mathematical models, Biological networks, Machine learning, Metabolism & Transcriptional regulation, Host-parasite interactions, Microbial community modeling	<b>Dr. Abhishek Subramanian</b>
RNA structure and translational regulation, Role of RNA binding proteins in neurological diseases, <i>Drosophila</i> models of human diseases.	<b>Dr. Indranil Malik</b>
Artificial Intelligence and Machine Learning, Software Development for Drug Discovery, Protein-Protein, Protein-Ligand Interactions, Chemoinformatics, Bioinformatics and Health Informatics, Computational Quantum Chemistry, Non-covalent interactions.	<b>Dr. G. Narahari Sastry</b>

# Minimum Eligibility Criteria

## Eligibility

- MTech in any area of Life Sciences/Biotechnology/Physical Sciences
- MSc degree in any allied area of Life Sciences/Biotechnology, Physical or Chemical Sciences and possessing a valid National level JRF qualification (or) qualified GATE (need not be valid).
- BTech/BE in any allied area of Life Sciences/Biotechnology/Physical Sciences (or) MBBS and qualified GATE (need not be valid) or with a valid National level JRF qualification.

Candidates should also possess:

- General category: at least 63% marks in the highest qualifying degree
- OBC category: at least 62% marks in the highest qualifying degree
- SC/ST category: at least 60% marks in the highest qualifying degree
- For those who have not yet completed their qualifying examination, the marks obtained up to the 3<sup>rd</sup> semester for M.Sc./M.Tech. and 7<sup>th</sup> semester for B Tech/BE Students will be considered.

## Category of admission

- I. Full-time Institute Fellowship (funded by MoE): Any candidates with MTech/MSc/BTech/MBBS degree can apply.
- II. Fellowship from external funding agency: Candidates with valid CSIR-NET-JRF/UGC-NET-JRF/ICMR-JRF/DBT-JRF/ (Category-I) award or any other equivalent national level qualification for research fellowship (e.g., DST-INSPIRE fellowship) can apply under this category.
- III. Sponsored project: GATE/CSIR-NET-JRF/UGC-NET-JRF/ICMR-JRF/DBT-JRF/DST-INSPIRE qualified candidates with MTech/MSc/BTech/MBBS degree can apply.

## Notes:

1) Ensure that you qualify for all eligibility criteria before applying. The department reserves the right to set any cut-off criteria for shortlisting the candidates.

# Selection Procedure

- Candidates will be shortlisted and called for an interview according to the criteria set by a shortlisting committee.
- Selection to the Ph.D. program will be based on the performance in the interview.
- Request to change the interview date/time will not be entertained.

Interested candidates can apply online through IIT Hyderabad's website: <http://www.iith.ac.in/phdadmissions/>

For any further information, please contact by email:

[phd\\_biotech@iith.ac.in](mailto:phd_biotech@iith.ac.in)

**Note:** *The department has the right not to select any candidate if appropriate candidates are not found.*

# Career Prospects

## Biomedical Research



## Teaching



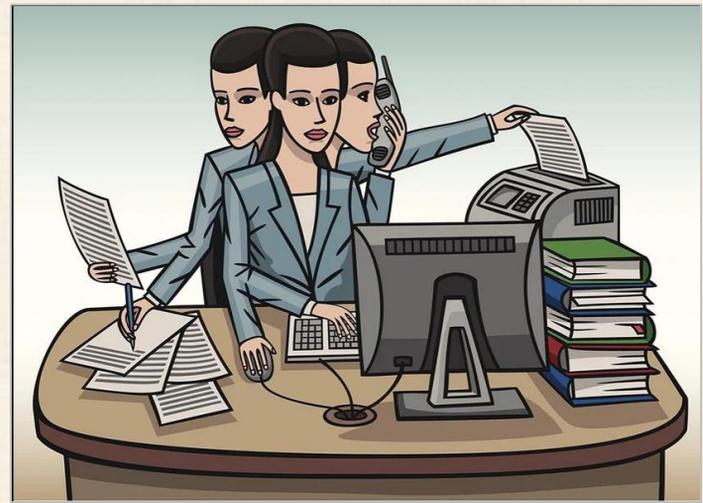
## Entrepreneurship and startup

### Agriculture, Pharmaceuticals & Healthcare Industries



## Science writers & communicators

### AI/ML applications in Life Sciences



## Top Companies and Institutes

