Department: Department of Biosciences and Bioengineering (BSBE)

Year of Establishment of the Department: 2002

Academic Programmes Offered: B. Tech, M. Tech. in Biotechnology, M. Tech. in Bioengineering, and Ph. D.

LABORATORY FACILITIES:

Brief description of the laboratories in the department of BSBE:

i. **MAB (Mechanistic Approaches to Biology) Lab (Prof. B. Anand):** The current focus of our vibrant research group is directed towards addressing fundamental and important questions in the area of RNA biology by employing an eclectic mix of modus operandi that is drawn from biochemical, biophysical, computational and molecular genetics approaches. Our immediate obsession is to resolve the mechanistic questions pertaining to CRISPR Biology and Ribosome Biogenesis.

ii. **BERL (Bioengineering Research Laboratory) (Prof. Utpal Bora):** The research interests of this laboratory include Biomedical Engineering, Seri-biodiversity, Seri-bioinformatics and Bio-entrepreneurship.

iii. **Molecular Networks and Recombinant Therapeutics (Dr. Biplab Bose):** The lab is interested in understanding the inter-connected cellular communication systems. Particularly, the lab is interested to know the effect of architecture, kinetics and integration of the molecular pathways on vital cellular processes. The lab uses experimental as well as theoretical tools to understand how information is carried and processed in such signaling networks. The lab is also involved in developing molecules that can target particular signal transduction pathway. Such a molecule can be used to modulate an aberrant pathway involved in a particular disease.

iv. **Plant Tissue Culture & Secondary Metabolite Production Lab (Prof. Rakhi Chaturvedi):** The tree species with long generation cycle are mostly highly heterozygous in nature due to strict cross pollination and are considered to be recalcitrant (difficult to regenerate in vitro). The genetic improvement of these plants and development of homozygous lines (pure) is either very challenging or impossible using the conventional methods, because the cross pollination is a rule. This limitation has completely been overcome by the research group of Dr Chaturvedi while working on two complex tree species, Neem (*Azadirachta indica*) and Tea (*Camellia species*). Prof. Chaturvedi's laboratory has also involved in developing Plant Cell Culture Technology as an alternative to whole plant extraction for the production of secondary metabolites of medicinal and commercial values. Although these compounds can also be isolated from naturally grown whole plants, continued destruction of plants for the purpose may pose a major threat to species getting extinct. Her research group is able to identify, purify and isolate three main categories of bioactive metabolites: essential oils, coumarins and alkylamides, from in vitro elite cell lines of medicinal plants. Some of these compounds are complex triterpenoids which are difficult to synthesize chemically. The focused research work in the laboratory are: (i) Mass multiplication by micropropagation/clonal propagation of medicinally and economically valuable plants, (ii) In vitro haploid and doubled haploid plant production to generate homozygous (pure) lines to produce hybrid vigour for improved plant yield, (iii) Triploid plant production to develop seedless variety, (iv) Somatic embryogenesis for synthetic seed production, (v) Protoplast isolation and regeneration for single cell cloning and isolation of mutants, (vi) Cytological and Histological studies of in vitro raised cultures to understand their ploidy, development and origin (vii) Cell biomass production in shake-flask for screening,

characterization and quantification of medicinally and commercially useful plant metabolites and their scale-up in photo-bioreactors

v. **Biophysical Chemistry Lab (Prof. Nitin Chaudhary):** The laboratory focuses on understanding the molecular self-assembly and amyloid diseases, protein/peptide membrane interactions, and developing peptide-based antibiotics.

vi. **Bioprocess Development Lab (Prof. Debasish Das):** Bioprocess Development Lab majorly focuses on developing and demonstrating sustainable technologies towards renewable fuels. We are currently working on developing sustainable technologies towards biocrude production from microalgal isolates, butanol production from *Clostridium* sp, ethanol fermentation from adapted *Z. mobilis* strains. We have ventured towards plant tissue culture and demonstration on a pilot scale facility with industrial collaboration.

vii. **Prof. V. V. Dasu lab:** The laboratory focuses on Bioprocess development (upstream to downstream), metabolic engineering, and bioenergy.

viii. **Cancer therapeutics (Prof. Siddhartha Sankar Ghosh):** The laboratory focuses towards delineating the interconnected molecular pathways involving EMT and MDR as a potential therapeutic strategy to obliterate aggressive malignancies. We have ventured into activated signaling pathways, such as the Wnt and Notch signaling pathways and are exploring the use of gene therapy, protein therapy, SMIs, exosomes and membrane-derived nanovesicles as candidate therapeutic molecules that could be applied to target these pathways, along with the combination of rational therapeutic modalities. The lab has also set up infrastructure facilities for interdisciplinary collaborative research in the field of nanoscience and nanotechnology supported by extramural funding at IIT Guwahati. The major area is to develop new nanoparticles, nanocomposites and nanocarriers and evaluate their antimicrobial and anticancer activities

ix. **Biosensor and Biofuel Cell Research Lab (Prof. Pranab Goswami):** The lab is involved in the development of novel bio-recognition system and their applications for developing biosensors and biofuel cells. DNA aptamers, catalytic as well as non-catalytic proteins have been investigated as biorecognition elements for some clinical applications targeting to operate in point-of-care and resource limited environments. Focus has been given on the rapid detection of acute myocardial infarction (AMI), cholesterol, alcohol, bilirubin and malaria due to their obvious importance in diagnostic sector.

x. **Carbohydrate Enzyme Biotechnology Laboratory (Prof. Arun Goyal Lab):** Research related to molecular biology, protein engineering, structural and functional proteomics of carbohydrate active enzymes are carried in this lab.

xi. **Neural Engineering Lab (Dr. Cota Navin Gupta):** Broadly the research lab's current focus is in the areas of brain computer interfaces, imaging genetics for psychiatric disorders, multimodal/multivariate algorithm development and designing wearable medical solutions for patient mobility.

xii. **Stem Cell and Cancer Biology Group (Prof. Bithiah Grace Jaganathan):** The current focus of the research group is to understand the role of mechanotransduction in stem cell differentiation and cancer metastasis. The group also studies various signaling pathways and microenvironment mediated chemoresistance in leukemia and breast cancer.

xiii. **Structural and Computational Biology Laboratory (Prof. Shankar Prasad Kanaujia):** The lab uses the knowledge of various techniques such as molecular biology, structural biology (X-ray Crystallography) and biophysical and biochemical studies to understand the mechanism of different

biological functions. In addition, the lab applies the molecular dynamics simulations to further corroborate the results obtained from various experiments. Currently, the lab is focusing on investigating into the mechanisms involved in protein translation initiation, ABC transporters and their role in multidrug resistance.

xiv. **Molecular Microbiology Laboratory (Prof. Manish Kumar):** The research lab focuses on the molecular mechanisms underlying host–pathogen interactions in infectious diseases. Key research areas include (i) Dissecting the molecular interactions among hosts and pathogens of infectious diseases, (ii) Investigating gene expression dynamics in spirochetes- *Leptospira interrogans* and *Borrelia burgdorferi*, (iii) Developing vaccine candidates targeting outer membrane proteins of *Leptospira interrogans* and *Borrelia burgdorferi*, and (iv) Studying vector-borne zoonotic diseases with significant public health impact. The lab has the following facilities: Laminar air flow (Thermo Scientific), incubator (Scigenics Biotech), Thermal cycler (PCR, Biorad), centrifuges (Thermo Scientific), Chemidoc (Biorad), Spectrofluorometer (Tecan M Plex), Thermo Scientific multiscan, FPLC system (Biorad), electrophoresis units (Biorad), freezers (-20 ºC and 4 ºC).

xv. **Viral Immunology lab (Prof. Sachin Kumar):** The paramyxoviruses include viruses that are isolated from many species of terrestrial, avian and aquatic animals. The group includes many important pathogens of humans such as measles virus, human respiratory syncytial virus, human parainfluenza viruses, Nipah virus and Hendra virus and animals such as canine distemper virus and Newcastle disease virus. Newcastle disease virus (NDV) is the prototype member of this family and is a leading cause of respiratory disease in avian species. It leads to huge economic losses to the poultry industry in India. The laboratory focuses mainly on understanding the biology of avian paramyxovirus and development of vaccine against them using reverse genetics system.

xvi. **Cancer Biology Laboratory (Prof. Ajaikumar B. Kunnumakkara):** The Cancer Biology Laboratory at IIT Guwahati is dedicated to advancing translational cancer research through the identification of novel molecular targets for safe, effective, and affordable therapeutics. With a strategic focus on cancers highly prevalent in the North-East region of India, the laboratory addresses critical regional healthcare challenges through innovative biomedical investigation. Research programs integrate cancer biology, inflammation signaling, metabolomics, and molecular pharmacology to uncover mechanisms driving tumor initiation, progression, and therapeutic resistance. Significant findings have highlighted key inflammation- and metabolism-associated proteins as promising therapeutic targets for oral and lung cancers. By combining fundamental discovery with clinical relevance, the laboratory strives to accelerate the development of next-generation anticancer interventions with meaningful societal impact.

xvii. **The Molecular Endocrinology lab (Dr. Anil Mukund Limaye):** The laboratory focuses on the following research themes: (i) Hormone regulation of gene expression, (ii) Role of estrogen in breast tumor invasion and metastasis, (iii) Regulation of cystatin A expression and its role in breast cancer, (iv) HoxB2 in breast cancer, (v) GPR30/GPER-1 biology, (vi)Mechanisms of anticancer activity of EGCG, (vii) Karanjin and its biological effects

xviii. **Dr. Soumen Kumar Maiti Laboratory:** The research interests of the lab include Biochemical Engineering, Biofuel, Bioprocess modeling, control, optimization, Metabolic engineering, Downstream processing, Membrane separation, Bioremediation

xix. **Biomaterials and Tissue Engineering Laboratory (A DBT Unit of Excellence) (Prof. Biman B. Mandal):** Tissue engineering has emerged as a potential way to regenerate/treat tissue damage or organ failure as a result of injury and/or disease. Our laboratory majorly focusses on using silk

biomaterials for developing affordable and functional lab grown tissue/organ replacements for human transplantation. The lab research is directed towards the following areas of importance i.e. Tissue Engineering of Grafts and Implants, Stem Cell Based Regenerative Medicine, Biomaterials, 3D Bioprinting, Drug Delivery Systems, 3D In Vitro Disease Models for high throughput drug screening applications. More than 160 research articles have been published with very high impact and citations, 23 patents, 03 technology licensed, 01 product launched in market.

xx. **Organelle Biology and Cellular Ageing Lab (Dr. Shirisha Nagotu):** The lab focusses on understanding the biogenesis of organelles and the inter-organelle communication within a cell. The lab tries to understand the effect of ageing on organelle biology and the role of organelles in cellular ageing.

xxi. **Prof. Kannan Pakshirajan's laboratory:** The research interests of the lab are Environmental Biotechnology, Biological removal and recovery of inorganic compounds from wastewaters, Biofuels and other Biotechnological Products: production, process design, kinetics and environmental applications.

xxii. **Bio-interface & Environmental Engineering Lab (Dr. Lalit Mohan Pandey):** The laboratory focuses on the following research aspects: (i) Surface and interfacial science particularly in the area of Bio-interfaces and Biomaterials (Design of Biocompatible surfaces): The surfaces are modified using various Self-Assembled Monolayers (SAMs) and their interactions with water, bio macromolecules i.e. polymers, proteins and cells are studied, (ii) Protein's adsorption and aggregation: The lab investigates the adsorption behavior and properties of various adsorbed proteins on surfaces with different wettabilities by forming mono, mixed and hybrid SAMs. The role of surface chemistry at the nanometer scale on the aggregation of various therapeutic proteins is studied, and (iii) Environmental Biotechnology: The lab focuses on the 3Rs. Reduce waste generation, recycle the treated waste and reuse waste as by-product or recover energy from the waste.

xxiii. **Biomolecular solution and solid-state NMR (Dr Himanshu Singh):** Protein dynamics and allostery by solution and solid-state NMR; engineering of DNA-binding proteins for precise epigenetic mark detection; water–protein interaction networks in enzymes; chemical biology and molecular biophysics; biosensing and rapid CO2 reduction biotechnologies.

xxiv. **Molecular Informatics and Design Group (Prof. Vibin Ramakrishnan):** Molecular Informatics and Design Group integrates diverse disciplines of science and engineering in the design and development of advanced materials. The lab's approach to a research problem is 'idea centric' with a clear emphasis on the design phase, adopting modeling and informatics tools. The lab experiments a reductionist approach in understanding the interaction between molecules resulting in assembled architectures at nano and micro scale, and further employ it in the design of future materials. An information based modeling approach has been employed in the design and generation of tumor homing and cell penetrating molecules to test their efficacy as future drug delivery vehicles.

xxv. **Applied Biodiversity Laboratory (Prof. Latha Rangan):** The group tries to address the research questions in areas of Applied Biodiversity with special reference to bioresources of Northeast India using an integrative approach. .

xxvi. **Translational Crop Research Laboratory (Prof. Lingaraj Sahoo):** Pathogens, insects and abiotic stresses cause major losses in yield and quality of crops. The discoveries in basic plant research play a vital role in meeting these challenges by developing technologies to improve agriculture by introducing important traits to crop of interest. The lab employs integrated approaches to identify genes with significant agronomic impact in both model (Arabidopsis) and

crops (grain legumes and oil seeds), understand the mechanism by which they function and using this knowledge, develop designer crops for diverse plant abiotic (drought, salinity and nutrient deficiency or toxicity) and biotic (viral and insect) stress conditions, useful for growers, industry and consumers. Besides, the lab is working on biofortification in Asiatic grain legumes for healthcare applications and manipulation of key oil biosynthesis genes yield in Jatropha, a tropical perennial biofuel crop to improve oil quality and oil.

xxvii. **Prof. Gurvinder Kaur Saini laboratory:** The laboratory works in fungal biotechnology. The various aspects that are studied include (i) secondary metabolite production, (ii) development of hyper virulent strains of Metarhizium anisopliae and Beauveria bassiana using scorpion and spider neurotoxins, (iii) gene stacking in entomopathogenic fungi.

xxviii. **Computational Structural Biology laboratory (Dr. Priyadarshi Satpati):** Working in biomolecular interactions using computational methods (Molecular Dynamics Simulations, Electronic Structure Calculations etc). We are interested in understanding the speed and accuracy in biological processes. Current projects include studies of antimicrobial-peptide: membrane interactions, drug discovery against Mycobacterium tuberculosis, the accuracy of CRISPR-Cas9 editing, transcription factors, Quorum sensing inhibitors or S. mutans etc.

xxix. **Bio Process Analytical Technology (BioPAT) Laboratory (Prof. Senthilkumar Sivaprakasam):** The lab advances development by integrating Process Analytical Technology (PAT) with metabolic engineering to enhance the production of biopolymers, biotherapeutics, and nutraceuticals through real-time monitoring and control systems. By modifying metabolic pathways and optimizing critical process parameters, the lab aims to improve efficiency, product quality, and sustainability.

xxx. **RNA Binding Proteins Laboratory (Dr Kusum K Singh):** The laboratory focuses on the RNA-binding proteins that are involved in the splicing machinery. During splicing of premature mRNA, the spliceosome deposits a multiprotein complex termed exon-junction complex (EJC) onto the mRNAs. The subunits that form the core EJC are eukaryotic translation initiation factor 4A3 (eIF4A3), Y14, MAGOH and barentsz (BTZ, CASC3, and MLN51). Many proteins interact with the core EJC and our focus of study is a protein complex termed as Apoptosis- and Splicing-Associated Protein (ASAP). Components of both ASAP and EJC have been found to function in a wide range of activities pertaining to RNA metabolism including splicing, translation, nonsense-mediated mRNA decay (NMD) and apoptosis. We are currently focusing on the following research areas: Understanding the functions of ASAP with respect to EJC in mRNA metabolism. Elucidating the molecular involvement of RNA-binding proteins (RBPs) in various human diseases such as cancers, neurodevelopmental disorders. Exploring the post-transcriptional gene regulations of different RBPs.

xxxi. **Protein Biophysics Lab (Prof. R. Swaminathan)**: The main research focus in this lab is to investigate the structure, function and dynamics of proteins using spectroscopic techniques like UV-Visible spectroscopy and Fluorescence spectroscopy. Intrinsic electronic absorption and luminescence spectra in proteins originating from photoinduced electron transfer and charge recombination, respectively are actively studied. These novel spectra discovered in our lab are employed to monitor events like protein folding or aggregation in a label-free approach.

xxxii. **Neurospora and fungi laboratory (Prof. Ranjan Tamuli):** The Neurospora and fungi laboratory focuses to understand the cell signaling using the model filamentous fungus Neurospora crassa. This laboratory characterized several key genes involved in the calcium signaling process. Calcium is a universal second massager molecule involved in all cellular process starting from fertilization

to death. This laboratory also investigated nutritional values of about 110 rice varieties collected from the Northeast India. Additionally, four new endophytes were isolated from these rice varieties. Moreover, in a parallel study in the laboratory, work is in progress to develop nanofibers from banana for human applications.

xxxiii. **Stem Cell Engineering and Regenerative Medicine (SCERM) (Dr. Rajkumar P. Thummer):** We focus on developing safe non-integrative strategies for iPSC generation, reprogramming mechanisms, genome editing, and differentiation into functional cell types (e.g., cardiomyocytes, β-cells, neutrophils), while uncovering the transcriptional, epigenetic, and heterogeneity features of stem cells.

xxxiv. **Malaria Research Group (Prof. Vishal Trivedi):** The research interests of the lab include Anti-malarial Drug Discovery, Immunotoxcity studies in Macrophages, Regulation of Innate Immune Response, Endothelial Cells-RBC cytoadherence during Cerebral Malaria, Designing immunostimulatory and Anticancer agents.

xxxv. **Biochemical and Environmental Engineering Laboratory (Dr. Selvaraju Narayanasamy Lab):** The lab focuses on environmental bioremediation, advanced oxidation processes, and sustainable clean energy solutions. Ongoing research involves developing advanced nanocomposites and biochar-based catalysts for water contaminant sequestration, alongside biodiesel production and optimisation by microbial consortia, and bioenergy generation from waste biomass.

xxxvi. **Biomechanics and Simulations lab (Dr. Souptick Chanda)**: Biomechanics Lab with subject specialization and research Interests in Orthopaedic biomechanics, implant design and optimization, surgical simulations and application of soft computing/AI in allied fields.

xxxvii. **Computational lab:** The computational lab is used for carrying out the several computational courses of UG and PG classes such Bioinformatics, Computational Biology, Quantitative Biology, Biological Data analysis etc.

xxxviii. **Experimental Teaching laboratory:** The laboratory is used to conduct the experimental course of the B. Tech. and M.Tech. curriculum.

MAJOR EQUIPMENT AND FACILITIES ACQUIRED (1 APRIL 2025– 31 MARCH 2026):

Departmental Purchase:

1. **Refrigerated Microcentrifuge,** Make: ACCUMAX LAB DEVICES PVT LTD NEUATION, MODEL: M-24 PR
2. **Autoclave 35L,** Make: Equitron Autoclave SLEFA, Model: #7421 SLEFA
3. **Electroporator**, Make: Bio-rad; Model: Gene Pulser Xcell Eukaryotic System
4. **Boiling Water Bath,** Make: SVI Analytical, Model: SVWB-015D
5. **CO2 Incubator**, Make: Thermofisher Scientific, Model No.: Cat. No.: 371
6. **Digital Balance**, Make: Saffron, Model: SES 224C
7. **Digital PCR System**, Make: QIAGEN, Model: QIAcuity One 2 Plex
8. **Milli Q and Elix Water Purification System**, Make: Millipore

9. **pH meter**, Make: Mettler Toledo (Spark Scientific), MODEL: PH FP20
10. **Refrigerated Centrifuge Swinging bucket**, Make: SVI Analytical, Model: SVRC-070BL
11. **Printer scanner copier,** Make & Model: Toshiba E Studio 4528A
12. **Turbidimeter**, Make: Labman, MODEL: LMTB200
13. **Shaking Water Bath**, Model: OLS26, Make: Grant (Axibio)
14. **-80 degree vertical deep freezer**, Model: DW-86L388J, Make: Haier Biomedical
15. **Biosafety Cabinet (Type II A2)**, Make: IGene Labserve, Model No.: IG-CIIA2422
16. **UV Transilluminator**, Make: iGene Labserve, Model: IG-UVA

Purchase by Individual Labs:

1) Electromyogram (EMG) machine
2) Electrocardiograph (ECG) machine
3) Polysomnogram (PSG machine)
4) Bacterial Incubator
5) Centrifuge
6) Ultra-low refrigerator
7) SDS-PAGE gel apparatus
8) Incubators
9) Laminar Air flow chamber
10) Gene pulsar Xcell complete setup
11) Gel Imager
12) CO2 incubator for Cell culture
13) Deep Freezer (-80 °C)
14) Inverted Light Microscope
15) Automated antibody purification chromatography
16) Real time PCR System
17) Plant Growth Chamber

MAJOR AREAS OF RESEARCH AND DEVELOPMENT:

Cell signaling, Systems Biology, Plant Tissue Culture & Secondary Metabolites Production, Protein Biochemistry, Molecular Biology, Immuno Prasitology, Biofuel, Biochemical Engineering, Tissue Engineering and Biomaterials, Stem Cell Biology, Cell Therapy & Regenerative Medicine, Organelle Biology, Inter-organelle Communications, Cellular Ageing, Bio-interfaces and Biomaterials, Environmental Biotechnology, Nanobiotechnology, Chemistry-Biology Interface for Developing Antibacterials and Sensors, Stem cell engineering and regenerative medicine, Molecular Parasitology, Computational Biology, Plant Biotechnology, RNA Biology, Structural Biology, Fungal

Biotechnology, Molecular Endocrinology, Enzyme and Microbial Technology, Metagenomics, Environmental Biotechnology, Applied Biodiversity, Biosensors,Systems Biology, Bioprocess Engineering, Cancer Biology, Bio/Physio Sensors and Nanobioengineering, Biosensors and bio-fuel cells, Neural Engineering. Network medicine, Bio-Nano catalysis, Drug delivery vehicles, Preparation of polypyrrole embedded nanocellulose and surfactant (CTAB) modified carbon adsorbent for efficient elimination of azo-anionic dyes. Elimination of pharmaceutical wastes viz. antibiotics using carbon and grass based nanocellulose adsorbents. Phyto, microbial and fish toxicity studies for ecotoxicological assessment of the prepared adsorbents to understand its significance in eliminating pollutants from aqueous bodies, Biomechanics, Soft computing, Artificial intelligence, Machine learning, Implant design.

Cancer Biology Laboratory (Prof. Ajaikumar B. Kunnumakkara): The Cancer Biology Laboratory is actively engaged in the discovery of novel biomarkers and molecular signatures for early cancer diagnosis, prognosis, and therapeutic monitoring using advanced cellular and molecular approaches. Research focuses on identifying clinically relevant diagnostic indicators through the study of miRNA networks, inflammatory mediators, metabolic regulators, and tumor-associated signaling pathways. In parallel, the laboratory develops innovative therapeutic strategies based on natural bioactive compounds, targeted molecular interventions, and rational drug repurposing approaches. Investigations span major malignancies including breast, colon, brain, and ovarian cancers, with a specialized translational emphasis on oral cancer due to its high regional prevalence in Assam and the North-East region of India. Through this integrated diagnostic-to-therapy pipeline, the laboratory aims to deliver precise, affordable, and impactful solutions for cancer management.

Carbohydrate Enzyme Biotechnology Laboratory (Prof. Arun Goyal Lab): Molecular Biology, Protein Engineering, Rational Enzyme Engineering, 3-Dimensional Structure (In silico, crystal and solution) and Function analysis of enzymes and their industrial (Biorefinery, therapeutic, food, Pulp and paper) applications.

Biomolecular solution and solid-state NMR (Dr Himanshu Singh): Protein dynamics and allostery by solution and solid-state NMR; engineering of DNA-binding proteins for precise epigenetic mark detection; water–protein interaction networks in enzymes; chemical biology and molecular biophysics; biosensing and rapid CO2 reduction biotechnologies.

Bio-interface & Environmental Engineering Lab (Dr. Lalit Mohan Pandey): Bio-interface Engineering, Surface modification, Protein aggregation, Nano-biotechnology, Microbial enhanced oil recovery, Bioremediation of hazardous wastes i.e. oil spills, dyes, heavy metals.

Applied Biodiversity Laboratory (Prof. Latha Rangan): Molecular Biology, Protein Engineering, Rational Enzyme Engineering, 3-Dimensional Structure (In silico, crystal and solution) and Function analysis of enzymes and their industrial (Biorefinery, therapeutic, food, Pulp and paper) applications.

Stem Cell Engineering and Regenerative Medicine (SCERM) (Dr. Rajkumar P. Thummer) :

1. Generation of transgene-free induced Pluripotent Stem Cells (iPSCs) using non-integrative approaches
2. Understanding the molecular mechanisms of cell reprogramming using the genome editing tools such as CRISPR-Cas9
3. Generation of functional cardiomyocytes from either iPSCs or by direct reprogramming of somatic cells using integrative and non-integrative approaches

4. Generation of functional insulin-producing β-cells from either iPSCs or by direct reprogramming of somatic cells using integrative and non-integrative approaches
5. iPSCs-derived Neutrophils Expressing CAR for Targeted Cancer Therapy

Neurospora and fungi laboratory (Prof. Ranjan Tamuli): The major area of this laboratory to investigate the calcium signaling mechanism in Neuropora crassa. This laboratory also investigating the endophytes isolated from local rice varieties from Northeast India. Besides, this laboratory also developing banana nanofibers for therapeutic applications

Biochemical and Environmental Laboratory (Dr. Selvaraju Narayanasamy): Environmental Bioremediation, Microbial Biodiesel Production and Optimisation, Wastewater treatment via Advanced Oxidation Processes (AOPs), Bioenergy generation.

Bio Process Analytical Technology (BioPAT) Laboratory (Prof. Senthilkumar Sivaprakasam): Real-time Process Analytical Technology; Metabolic Engineering; Microbial production of biopolymers, biotherapeutics, and nutraceuticals.

Biomechanics and Simulations lab (Dr. Souptick Chanda) : Orthopaedic biomechanics, implant design and optimization, surgical simulations and application of soft computing/AI in allied fields.

MAJOR INITIATIVES AND BREAKTHROUGH IN RESEARCH AND DEVELOPMENT (1 APRIL 2025– 31 MARCH 2026) :

Cancer Biology Laboratory (Prof. Ajaikumar B. Kunnumakkara): A major initiative of the laboratory during this period has been the commencement of translational diagnostic kit development for women's health applications, with particular emphasis on ovarian cancer screening through the identification of sensitive and clinically relevant molecular biomarkers. This program is aimed at creating affordable, rapid, and accessible diagnostic platforms for early detection and risk stratification, especially for resource-limited settings. In therapeutic research, the laboratory achieved a significant breakthrough through the identification and validation of Mortalin as a critical molecular target in oral squamous cell carcinoma, with special relevance to the unique clinical profile of the North-East Indian population. Targeted silencing studies further demonstrated that suppression of Mortalin, along with NGALR in triple-negative breast cancer, markedly attenuates oncogenic progression by disrupting the Akt/mTOR and JAK/STAT3 signaling pathways. By integrating high-throughput bioinformatics, molecular oncology, and translational diagnostics, the laboratory is advancing precision-driven solutions to overcome therapeutic resistance and improve cancer management in aggressive and regionally prevalent malignancies.

Biomolecular solution and solid-state NMR (Dr Himanshu Singh): Development of a Smart Compact Bio System for rapid CO2 reduction in enclosed spaces; high-impact publications in International Journal of Biological Macromolecules, Journal of Magnetic Resonance, and Biomolecular NMR Assignments during/around the reporting period;

ongoing DBT and ANRF funded projects as PI.

Bio-interface & Environmental Engineering Lab (Dr. Lalit Mohan Pandey):

- A study showed that integrating rhamnolipid, NaCl, and biosynthesized SiNPs produces a strong synergistic effect, reducing IFT from 22.7 mN/m to as low as 0.45 ± 0.01 mN/m. The system also improves wettability and significantly reduces surfactant adsorption on sand grains, enhancing efficiency. These results highlight the salt–biosurfactant–BSiNP formulation as a highly promising and environmentally compatible solution for EOR in sandstone reservoirs. The study was published in the reputed journal Fuels.

- A study found that shear forces drive insulin into toxic amorphous aggregates, while cationic surfactin-inspired peptides counteract this by stabilizing insulin and suppressing aggregation. The works were published in a reputed journal J. Mater. Chem. B., and Proteins: Struct. Funct. Bioinf.

- A group performed a systematic investigation of various surface coatings on iron oxide nanoparticles (IONPs) to understand their influence on interfacial interactions, colloidal stability, and magnetic performance. The work was published in the repute journal Langmuir.

- A study identified a novel extremophilic Bacillus strain, isolated from seawater, that produced efficient, stable lipopeptide biosurfactants. A major breakthrough is achieving up to 90% degradation of crude oil, with significant hydrocarbon breakdown, offering a scalable solution for advanced oil spill bioremediation. The study was published in the journal Bioresource Technology Reports.

- Another major breakthrough was presented in a study showing a sustainable strategy for biofilm control by producing a surfactin-like lipopeptide biosurfactant from Bacillus subtilis using low-cost molasses, demonstrating high surface activity and eco-friendly characteristics . Notably, the biosurfactant exhibits strong, broad-spectrum antibiofilm efficacy (up to ~96% inhibition) through membrane disruption and biofilm matrix degradation, highlighting its potential as a green alternative to conventional antimicrobial agents. The study was published in the reputed journal APMIS.

- A study explored the differences in the spike protein binding efficiency directly on the bare amine self-assembled monolayers (SAMs) and further cross-linked with the N-ethyl-N′-(3-(dimethylamino)propyl)carbodiimide (EDC)/N-hydroxysuccinimide (NHS) and glutaraldehyde (GA). The study was published in the reputed journal Macromolecular Bioscience.

Plant Tissue Culture & Secondary Metabolite Production Lab (Prof. Rakhi Chaturvedi):

1. Journal Publication-

- Pachauri K. K. and **Chaturvedi R***. 2025. Bioprocess design to scale-up adventitious root biomass and associated key flavouring N-alkylamides from *Spilanthes paniculata* Wall.ex DC.in a modified photobioreactor. Appl Food Res. 5:1-13. [Publisher: Elsevier]
- Taga Y., **Chaturvedi R*** and Kosei Yamauchi*. 2025. Identification and in vitro production of anthocyanins contributing to the color change of *Lantana camara* L. petals. Plant Cell Tiss Organ Cult. 163:54. [Publisher: Springer]
- Srivastava V. and **Chaturvedi R***. 2025. Chemo profiling of in vitro cell cultures of *Tinospora cordifolia* for protoberberine alkaloid content analysis and to understand their therapeutic potential against *Staphylococcus aureus*. Ind. Crops Prod. 234: 121573. [Publisher: Elsevier]
- **Chaturvedi R***. 2025. Cellular Totipotency and Crop Improvement Utilizing Plant Tissue Culture Techniques. Proceedings of 53 rd International Plant Production Society (IPPS), May 28-31, 2025. Cairns, Australia. pp. 40-47.

2. Book chapters-

- Pachauri K. K. and **Chaturvedi R***. Asteraceae plants from eastern Himalayan region of India: an overview on potential ethnomedicinal application and in vitro conservation. In: Suman Chandra and Hemant Lata (Editors) High Altitude Medicinal Plants: Botany, Conservation and cultivation. Springer Publications, New York, USA, pp. 333-360, 2025.
- Debbarma A., **Chaturvedi R***, Maruyama K. and Yamamoto Y. Y. Conservation and Diversification of the Cold Stress Response in Higher Plants. In: S. K. Panda and M. K. Khan (Editors) Plant Functional Genomics for Abiotic Stress Resilience. Springer Nature Publications, Cham, Switzerland, pp. 269-297, 2025.

Biochemical and Environmental Laboratory (Dr. Selvaraju Narayanasamy):
A sanctioned DBT-NER project entitled "From waste microplastics to metallic nanoparticles: Biodegradation of microplastics in Northeastern India by harnessing the potential bacterial consortia"; Funding agency- Department of Biotechnology; Funding amount- Rs. 46,61284/-

Bio Process Analytical Technology (BioPAT) Laboratory (Prof. Senthilkumar Sivaprakasam): Sanctioned a ICMR project entitled "Metabolic Reprogramming of Kluyveromyces lactis and Advanced Bioprocess Development for the Bioproduction of Low Molecular Weight Heparin to Treat Blood Clotting Disorders"; Funding agency – Indian Council for Medical Research (ICMR); Funding amount – Rs. 1,15,99,427/-"

Biomechanics and Simulations lab (Dr. Souptick Chanda):
Notable Publications:

Sl. No.	Name of student	Title of Paper	Journal Name/Conference Name	Date of Acceptance	DOI	Remarks
01	Rahul Bhagawati, Souptick Chanda	Hemoperitoneum detection on non-contrast CT: Radiomics-driven explainable ML	Biomedical Signal Processing and Control	09/11/2025	https://doi.org/10.1016/j.bspc.2025.109177	Journal
02	Devismita Sanjay, Soumyadeep Sarkar, Souptick Chanda∗	Bone remodelling comparison between normal pedicle screw and expandable pedicle screw instrumented L4-L5 vertebrae: a preclinical study using FE analysis	Medical Engineering and Physics	09/01/2026	https://doi.org/10.1088/1873-4030/ae1825	Journal
03	Rahul Bhagawati, Swetank Shree, Souptick Chanda	From Pixels to Diagnosis: A Systematic Review of Deep Learning in Femoral Fracture Detection and Classification	International Conference on Advancing Science and Technologies in Health Science (IEM-HEALS 2025)	12/12/2025	https://doi.org/10.1051/bioconf/202520401018	Conference
04	Soumyadeep Sarkar, Souptick Chanda, Ram Niwas Sundariwal	Comparative Preclinical Study of a Solid and a Porous Hip Stem for Canine Femora Using Finite Element Analysis.	ICBME 2024, IFMBE Proceedings 132, pp. 79–91, 2025.	20/08/2025	https://doi.org/10.1007/978-3-032-04372-6_7	Conference
05	Jaideep Singh Bhardwaj, Souptick Chanda	Porous Metal Scaffolds for Enhanced Osseointegration: A Comprehensive Examination of Preclinical and Clinical Applications, 3D Technology in Orthopaedics: Redefining Orthopaedic Surgery	CBS Publishers and Distributors Ltd., 2025	NA	NA	Book Chapter

Prof. V. V. Dasu lab
Publications:

1. Sahoo, A., Das, P. K., **Veeranki, V. D.**, & Patra, S. (2025). Machine learning assisted media optimization for enhanced insulin production in *Pseudomonas fluorescens* cell factory and scale-up studies. *International Journal of Biological Macromolecules*, *311*, 144033. https://doi.org/10.1016/j.ijbiomac.2025.144033

2. Sahoo, A., **Veeranki, V. D.**, & Patra, S. (2025). Cellular engineering strategies for soluble and secretory recombinant human insulin production in *Pseudomonas fluorescens* and batch bioreactor study. *Journal of Biotechnology*, *406*, 1–12. https://doi.org/10.1016/j.jbiotec.2025.06.007

3. Das, P. K., Mahato, D. K., & **Veeranki, V. D.** (2026). Status and progress in the development of rDNA-derived Tocilizumab and its biosimilars for treatment of rheumatoid arthritis. *Biologicals*, *94*, 101884. https://doi.org/10.1016/j.biologicals.2026.101884

4. Das, P. K., Sahoo, A., & **Veeranki, V. D.** (2025). Modeling and Optimization of Recombinant Tocilizumab Production From *Pichia pastoris* Using Response Surface Methodology and Artificial Neural Network. *Biotechnology and Bioengineering*. https://doi.org/10.1002/bit.29024

5. Gedela, R., Sharma, S., Prabhu, A. A., Pakshirajan, K., & **Veeranki, V. D.** (2025). Elevated production of lipids and carotenoids from *Rhodotorula mucilaginosa* using raw dairy wastewater as crude renewable substrate: a waste to wealth transformation approach. *Chemical Papers*, *79*(7), 4403–4418. https://doi.org/10.1007/s11696-025-04064-x

6. Sahoo, A., **Veeranki, V. D.,** & Patra, S. (2025). Production of recombinant human insulin using constitutive and non-IPTG inducible promoters in *Pseudomonas fluorescens* and scale-up study. *Process Biochemistry*, *158*, 35–43. https://doi.org/10.1016/j.procbio.2025.08.011

7. Gedela, R., Vantaku, V. R., **Dasu, V. V.,** & Pakshirajan, K. (2025). Artificial intelligence and machine learning-assisted metabolite profiling of oleaginous yeast *Rhodotorula mucilaginosa*. *Bioresource Technology Reports*, *32*, 102431. https://doi.org/10.1016/j.biteb.2025.102431

8. Kulkarni, N. A., Das, P. K., P, A., & **Veeranki, V. D**. (2025). Molecular chaperones: A revolutionary approach for increased solubility of recombinant mAbs from bacterial and yeast systems. *Protein Expression and Purification*, *234*, 106764. https://doi.org/10.1016/j.pep.2025.106764

9. Das, P. K., Panja, P., **Veeranki, V. D.,** & Naidu, V. G. M. (2026). Recombinant Fab and scFv fragments of Tocilizumab: Microbial production and functional insights. *Chemical Engineering Journal*, *529*, 172991. https://doi.org/10.1016/j.cej.2026.172991

10. Das, P. K., Sahoo, A., & **Veeranki, V. D.** (2025). Development of a novel system for the expression and production of recombinant monoclonal antibody, tocilizumab, using *Pichia pastoris*. *International Journal of Biological Macromolecules*, *318*, 145297. https://doi.org/10.1016/j.ijbiomac.2025.145297

11. Rajesh, R. O., Saha, D., Karthikanath, P. R., Gokul, C. S., Abhiramy, D. S., Balakumaran, P. A., **Dasu, V. V.,** & Prabhu, A. A. (2025). Advances in circular biorefinery processes towards organic acids from crude glycerol by microbial cell factories. *Process Safety and Environmental Protection*, *202*, 107748. https://doi.org/10.1016/j.psep.2025.107748

12. Ravi, G., **Venkata Dasu, V.,** & Pakshirajan, K. (2025). A comparative evaluation of batch and fed-batch cultures for enhanced lipid, carotenoid, and β-carotene production by *Rhodotorula mucilaginosa*. *Preparative Biochemistry & Biotechnology*, *55*(5), 606–619. https://doi.org/10.1080/10826068.2024.2444977

13. Ravi, G., **Venkata Dasu, V.,** & Pakshirajan, K. (2025). Exploring the impact of sodium acetate on lipid and carotenoid production in *Rhodotorula mucilaginosa*. *Preparative*

Biochemistry & Biotechnology, *55*(5), 590–605.
https://doi.org/10.1080/10826068.2024.2441918

14. Saha, D., Das, P. K., & **Veeranki, V. D.** (2025). Developments in the Production

Molecular Informatics and Design Group (Prof. Vibin Ramakrishnan):

Molecular Informatics and Design Laboratory: In last one year, MID lab has transitioned from foundational biophysics into what I call "Precision Engineering of Biological Systems." Their work during this period has been defined by three major pillars: Stereochemical Diversification, Network Medicine, and Supramolecular Nano-assemblies.

1. The Stereochemical Breakthrough: "The Code of Chirality"

In mid-2025, the lab published a seminal work in the *Journal of Physical Chemistry B* regarding **Stereochemical Diversification**.

- **The Concept:** Traditional peptides are usually composed of L-amino acids. The Ramakrishnan lab pioneered the use of "syndiotactic" sequences—alternating L and D isomers—to create **molecular fingerprints** that nature never intended.
- **The 2025 Discovery:** They successfully modulated the structural interaction fingerprints of these peptides. By manipulating the "tacticity" (the spatial arrangement), they created peptides that are highly resistant to proteolytic degradation but remain hyper-functional.
- **Application:** These are being developed as "indestructible" drug delivery vectors for high-acid environments like the stomach or the tumor microenvironment.

2. Advanced Therapeutics: Triple-Negative Breast Cancer (TNBC)

Throughout late 2025, the lab focused on **Structural Regression Modelling** of drug delivery vectors, specifically targeting TNBC, one of the most aggressive forms of cancer.

- **The Innovation:** They moved beyond trial-and-error by using computational informatics to predict exactly how a peptide will "home" into a tumor.
- **The Result:** The lab engineered a series of **peptide-based molecular constructs** that act like GPS-guided missiles. These constructs combine "tumor-homing" domains with "cell-penetrating" domains, effectively bypassing the biological barriers of the tumor.

3. Network Medicine: Mapping the "Complexome" : Entering early 2026, the lab's focus on **Network Medicine** and **Spectral Graph Theory** reached a new peak.

- **Cardiac Hypertrophy Research:** Building on their earlier work, the lab utilized **network spectra** to identify structural symmetries in diseased heart tissue. This

allows them to predict "multi-molecular therapeutics"—essentially using a cocktail of drugs that hits multiple targets simultaneously to prevent heart muscle thickening.

- **Network Spectral Analysis:** Instead of looking at one gene, they map the entire "complexome" of a disease. This mathematical approach allows them to identify **novel biomarkers** for precision medicine that were previously invisible to traditional biology.

Bioengineering Research Laboratory (BERL) (Prof. Utpal Bora):

Publications:

Manta, A., Kalyan, E., Kalita, J. J., Zothanzama, J., Kumar, N. S., & **Bora, U.** (2025). Unveiling the pesticidal potential of Edible mushrooms: A concise review on bioactive compounds. *Journal of Agricultural and Food Chemistry*

Bharali, B., Basumatary, P., & **Bora, U.** (2025). Microbiome Dynamics in Samia cynthia ricini: Impact of Growth Stage and Dietary Variations. *Applied Microbiology*, *5*(2), 40. https://doi.org/10.3390/applmicrobiol5020040

Nath, A., & **Bora, U.** (2025). Comparative analysis of sequential and thermodynamic features of pre-miRNA in insects with various organisms and applying XGBoost for one-vs-rest binary classification. *Scientific Reports*, *15*(1), 39407. https://doi.org/10.1038/s41598-025-22138-4

Saikia, D., Basumatary, P., Nath, A., Kalita, J. J., Neog, K., Purkait, M. K., & **Bora, U.** (2025). Metagenomic and Metatranscriptomic Insights into the Structure and Function of the Gut Microbial Community of Antheraea assamensis Helfer. *Indian Journal of Microbiology*. https://doi.org/10.1007/s12088-025-01525-5

Kalyan, E., Manta, A., Lama, R., Borah, U., Basumatary, P., **Bora, U.** (2025). Innovations in Leguminous Microgreens: Recent Trends and Applications. In Mathur, P., Gupta, A. (eds) *Recent Trends and Applications of Leguminous Microgreens as Functional Foods*. Springer, Cham.

Basumatary, P., Saikia, D., Talukdar, M. P., Kalyan, E., & **Bora, U.** (2026). Downstream Processing of Fermentation Media. In *Integrative Approach to Fungal Infections and Bioprospecting for Drug Discovery* (1st ed., pp. 3–57). CRC Press. https://doi.org/10.1201/9781003752196-2

CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: NATIONAL/ INTERNATIONAL (1 APRIL 2025– 31 MARCH 2026)

Sl. No.	Name of Faculty	Name of Conf./Workshop	Place	Date	International/ National
1.	Prof. Ajaikumar B. Kunnumakkara	International Conference on Biological Communications in Disease and Development	Hyderabad	17-19 December 2025	International
2.	Prof. Ajaikumar B. Kunnumakkara	7th International Conference on Nutraceuticals and Chronic Diseases (INCD-2025) 11th Symposium on Translational Research	Kerala	6-8 October 2025	International
3.	Prof. Ajaikumar B. Kunnumakkara	Recent Advances in Chemistry (RAC 2025)	Meghalaya	October 30-1 November 2025	National
4.	Prof. Ajaikumar B. Kunnumakkara	World Government's Summit	Dubai	3-5 February 2026	International
5.	Prof. Arun Goyal	Sustainable Chemistry for Greener Future (SCGF-2026)	Central Institute of Technology Kokrajhar, Kokrajhar, Assam.	19-20/03/2026	National
6.	Prof. Arun Goyal	Current Trends in Multidisciplinary Domains of Research	Jaipur, Rajasthan (Online)	13-14/03/2026	International
7.	Prof. Arun Goyal	Japan-North-Eastern Region Academia-Industry Technology Cooperation Symposium	Guwahati, Assam	09-10/03/2026	International
8.	Prof. Arun Goyal	Sustainable Environment, Energy and Biosciences (ICSEEB 2026)	Nagaon, Assam	06-07/03/2026	International
9.	Prof. Arun Goyal	Sustainable Biotechnology and Bio-Innovations (SBB-2026)	Noida, Uttar Pradesh	25-27/02/2026	International
10.	Prof. Arun Goyal	X International Conference on Sustainable Energy and Environmental Challenges (X SEEC)	Jodhpur, Rajasthan	15-18/12/2025	International
11.	Prof. Arun Goyal	Advances in Biotechnology, Bioprocessing and Structural Biology (ICABSB-2025)	Roorkee, Uttarakhand	11-14/12/2025	International
12.	Prof. Arun Goyal	39th International Carbohydrate Conference	Varanasi, Uttar Pradesh	21-23/11/2025	International

		on 'Emerging Trends in Glycoscience and Glycotechnology (ETGG-2025)			
13.	Prof. Arun Goyal	Synthetic Biology and Future Food Networking Forum and IBA Subject Conference	Bangkok, Thailand	05-07/11/2025	International
14.	Dr. Himanshu Singh	Indo-Japan NMR School	ICGEB, New Delhi	07/03/2025-09/03/2025	International
15.	Dr. Himanshu Singh	48th Indian Biophysical Meeting on Biomolecular Dynamics	NEHU Shillong, Meghalaya	13/03/2026-15/03/2026	National
16.	Dr. Himanshu Singh	Asia Pacific NMR (APNMR-NMRS) Conference 2025	IISER Pune, India	25/06/2025-29/06/2025	International
17.	Prof. Kannan Pakshirajan	1st International Conference on Frontier Areas of Agriculture, Biotechnology and Food Technology for Sustainable Bio resources and Bio economy (ICFAABF 2025)	Bannari Amman Institute of Technology Sathyamangalam, Erode District, Tamil Nadu	24/04/2025 – 25/04/2025	International
18.	Prof. Kannan Pakshirajan	Recent Advances in Applied Biology (RAAB-2025)	Tihu College, Tihu, Assam	15/09/2025 - 16/09/2025	National
19.	Prof. Kannan Pakshirajan	Research & Industrial Conclave (RIC) 2025	IIT Guwahati, Guwahati, Assam	10/10/2025 – 12/10/2025	National
20.	Prof. Kannan Pakshirajan	19th Global Congress on Manufacturing and Management (GCMM 2025) Artificial Intelligence and Sustainable Manufacturing for Global Economy	Vellore Institute of Technology, Vellore, Tamil Nadu	10/12/2025 – 12/12/2025	International
21.	Prof. Kannan Pakshirajan	Short Term Training Program on Cutting-Edge Carbon Capture Technologies and Industrial Applications	Coimbatore Institute of Technology, Coimbatore, Tamil Nadu	15/12/2025 - 20/12/2025	National
22.	Prof. Kannan Pakshirajan	Current Trends in Biological Sciences 2026 (CTBS 2026)	Sardar Patel University	26/02/2026	National

			Bakrol, Anand District, Gujarat		
23.	Dr. Kusum K. Singh	Dynamics and Evolution of RNA Functions	ICTS, IISc Bangalore	22/09/2025 to 03/10/2025	International
24.	Prof. Lalit M Pandey	48th Indian Biophysical Society Meeting (IBS 2026) & International Conference on Biomolecular Dynamics	NEHU Shillong	13-15/03/2026	International
25.	Prof. Lalit M Pandey	Traditional Healing Practices of Assam	IIT Guwahati	27-28/02/2026	National
26.	Prof. Lalit M Pandey	Advances in Biotechnology, Bioprocessing, and Structural Biology (ICABSB-2025)	IIT Roorkee	11-14/12/2025	International
27.	Prof. Lalit M Pandey	Engineered Hydroxyapatite: Bridging Bone Regeneration and Antimicrobial Protection	IIT Guwahati	19/07/2025	National
28.	Prof. Latha Rangan	Global Conference on Integrating Technology with Healthcare, Pharmaceuticals, Biotechnology, Agriculture, and Biomedical Sciences for Sustainable Development (ITHPBAB - 2025)	Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur, AP	17/12/2025	International
29.	Prof. Latha Rangan	Indo-German workshop titled "Modern Applications from Traditional Remedy: The Metamorphosis of Insulin Plant (*Costus pictus*) into Antidiabetic Functional Food"	Institute of Agricultural and Horticultural Sciences, Humboldt University of Berlin, Germany	03/06/2026	International
30.	Dr. Priyadarshi Satpati	Theoretical Chemistry Symposium (TCS) 2025	IIT Bombay, Mumbai	02/12/25 – 05/12/25	National
31.	Prof. Rajaram Swaminathan	15th European Biophysics Congress	Rome, Italy	30/06/25 to 4/07/25	International
32.	Prof. Rajaram Swaminathan	70th Annual Meeting of the Biophysical Society	San Francisco, USA	21/02/26 to 25/02/26	International
33.	Prof. Rakhi Chaturvedi	47th Annual Meeting of Plant Tissue Culture Association (India), Symposium and Industry	JNU Convention Centre, Jawaharlal Nehru	17/02/2026 to 20/02/2026	International

		Conclave on Plant Tissue Culture for Boosting Biomanufacturing, Nutritional Security, and Climate Resilience (PTCBB)	University, New Delhi, India		
34.	Rajat Rajesh Tirdke, Chetna Sharma and **Prof. Rakhi Chaturvedi**	47th Annual Meeting of Plant Tissue Culture Association (India), Symposium and Industry Conclave on Plant Tissue Culture for Boosting Biomanufacturing, Nutritional Security, and Climate Resilience (PTCBB)	JNU Convention Centre, Jawaharlal Nehru University, New Delhi, India	17/02/2026 to 20/02/2026	International
35.	Sangita Tamang and **Prof. Rakhi Chaturvedi**	47th Annual Meeting of Plant Tissue Culture Association (India), Symposium and Industry Conclave on Plant Tissue Culture for Boosting Biomanufacturing, Nutritional Security, and Climate Resilience (PTCBB)	JNU Convention Centre, Jawaharlal Nehru University, New Delhi, India	17/02/2026 to 20/02/2026	International
36.	Chetna Sharma and **Prof. Rakhi Chaturvedi**	International Conference on Advances in Biotechnology , Bioprocessing, and Structural Biology (ICABSB)	Indian Institute of Technology Roorkee, India	11/12/2025 to 14/12/2025	International
37.	Sangita Tamang and **Prof. Rakhi Chaturvedi**	International Conference on Advances in Biotechnology , Bioprocessing, and Structural Biology (ICABSB)	Indian Institute of Technology Roorkee, India.	11/12/2025 to 14/12/2025	International
38.	Chetna Sharma, Sangita Tamang, Abhishek Dwivedi and **Prof. Rakhi Chaturvedi**	The Research and Industrial Conclave (RIC) 2025	Indian Institute of Technology Guwahati, Guwahati, India	10/10/2025 To 12/10/2025	National
39.	Krishna Kant Pachauri and **Prof. Rakhi Chaturvedi**	In vitro biology meeting, Society for In Vitro Biology (SIVB)	Norfolk, Virginia, USA	07/06/2025 to 11/06/2025	International

40.	Prof. Rakhi Chaturvedi	53rd International Plant Propagator's Society (IPPS)-AU Conference	Cairns, Australia	28/05/2025 to 31/05/2025	International
41.	Prof. Siddhartha Sankar Ghosh	ICANN 2025- The 9th International Conference on Advanced Nanomaterials and Nanotechnology, organized by IIT Guwahati, December 12-14, 2025	IIT Guwahati	December 12-14, 2025	International
42.	Prof. Sachin Kumar	XXXVII Annual Convention-cum-National Symposium on "Strengthening Animal vis-à-vis Human Health for Addressing Challenges in the 21st Century" - IAVMICON-2026	Maharashtra Animal and Fishery Sciences University, Nagpur	26/02/2026-27/02/2026	National
43.	Prof. Sachin Kumar	Microbial voices supported by Microbiology Society Champion Scheme	School of Allied and Healthcare Professions, RV University, Bengaluru	26/11/2025	National
44.	Dr. Selvaraju Narayanasamy	First International Conference on Energy and Water for Sustainable Environment	Department of Green Energy Technology, Pondicherry University, India	30/09/2025	International
45.	Dr. Shirisha Nagotu	Increased peroxisome number in yeast Parkinson's disease model is independent of the division proteins Vps1 and Dnm1	EMBO Meeting "Celebrating 70 years of peroxisome research"	Girona, Spain	2-6 September 2025
46.	Dr. Shirisha Nagotu	Increased peroxisome number in yeast Parkinson's disease model is independent of the division proteins Vps1 and Dnm1	13th International Conference on Yeast Biology (India Yeast Meeting 2025).	IISc, Bengaluru	3– 6 December 2025
47.	Dr. Shirisha Nagotu	Parkinson's disease: novel insights into the cellular alterations using a yeast model	95th Annual Symposium of NASI	IIT Guwahati, Guwahati	10 December 2025

48.	Dr. Shirisha Nagotu	Insights into protein aggregation and the effect on organelle dynamics in a yeast disease model	India BioImaging Annual Meeting	JSS AHER, Mysore	11-12, December 2025
49.	Dr. Shirisha Nagotu	Insights into protein aggregation and the effect on organelle dynamics in a yeast disease model	International Conference on Biological Communications in Disease and Development (94^{th} Annual meeting of the Society for Biological Chemists (India))	University of Hyderabad, Hyderabad	17-19 December 2025
50.	Dr. Souptick Chanda	ESB 2025 - 30th Congress of the European Society of Biomechanics	Switzerland	09/07/2025	International
51.	Prof Lingaraj Sahoo	ICAR sponsored Winter School on Advances in Cutting-Edge Allele Mining and Bioinformatics Tools and Techniques for Skill Development in Efficient and Tailored Crop Improvement	College of Post Graduate Studies in Agriculture, CAU, Barapani	09-02-2026	National
52.	Prof Lingaraj Sahoo	Japan-NER Academia-Industry Technology Cooperation Symposium 2026 (JNTCS 2026)	IIT Guwahati	09-10^{th} March 2026	International
53.	Prof. Utpal Bora	International Conference on Sustainable Environment, Energy and Biosciences (ICSEEB-2026)	ADP College, Nagaon, Assam	6th–7th March 2026	International
54.	Prof. Utpal Bora	International Conference on Transforming Northeast India from Biodiversity Hotspot to Biomanufacturing Hotspot: A BioE3 Perspective	Dept. of Biotechnology, The Assam Royal Global University, Guwahati, sponsored by Anusandhan National Research Foundation (ANRF), and Defence	29–30 January 2026	International

			Research and Development Organization (DRDO), Government of India		
55.	Prof. Utpal Bora	International Conference on Science, Technology, Innovation and Policy for Global Health and Sustainability (ICSTIP 2025)	Panikhaiti campus, Assam down town University, Guwahati	27th – 29th October 2025	International

INVITED LECTURES OF FACULTY: IN INDIA, ABROAD (1 APRIL 2025– 31 MARCH 2026)

Sl.No.	Name of Faculty	Name of Lecture	Name of Inst./Org.	Place	Date
1.	Prof. Ajaikumar B. Kunnumakkara	Targeting Oral Cancer with Withaferin-A (Ashwagandha Withanolide): Rationale and Promise	NIT Meghalaya	Meghalaya	01/11/2025
2.	Prof. Ajaikumar B. Kunnumakkara	Withaferin-A from Ashwagandha: A promising Frontier in Oral cancer Treatment	University of Hyderabad, Hyderabad	Hyderabad	18/12/2025
3.	Prof. Ajaikumar B. Kunnumakkara	Why Ashwangandha withanolide-Withaferin A-for oral cancer?	Society for Nutraceuticals and Chronic Diseases and University of Kerala	Kerala	06/10/2025
4.	Prof. Arun Goyal	A bifunctional α-L-arabinofuranosidase with endo-β-1,4-xylanase and its role in fruit juice clarification	Birla Institute of Scientific Research	Jaipur, Rajasthan	13/03/2026
5.	Prof. Arun Goyal	Plant-based prebiotic galacto-oligosaccharides produced from potato-galactan by endo-β-(1,4)-galactanase (*At*GH53)	IIT Guwahati	Guwahati, Assam	09/03/2026
6.	Prof. Arun Goyal	Sustainable Environment, Energy and Biosciences (ICSEEB 2026)	Anandram Dhekial Phukan (ADP) College	Nagaon, Assam	06/03/2026
7.	Prof. Arun Goyal	A processive exo-β-1,6-galactanase from Ruminococcus flavefaciens	Amity University	Noida, Uttar Pradesh	25/02/2026
8.	Prof. Arun Goyal	Structure and functional analysis of a recombinant endoglucanase (AtGH9C-	IIT Jodhpur	Jodhpur, Rajasthan	15/12/2025

		CBM3A-CBM3B) and nanocellulose-based hydrogel			
9.	Prof. Arun Goyal	Structure and reaction mechanism analysis of a novel xylobiohydrolase (AcGH30A) and its application in degumming	IIT Roorkee	Roorkee, Uttarakhand	11/12/2025
10.	Prof. Arun Goyal	A novel bifunctional α-L-arabinofuranosidase/endo-β-1,4-xylanase (BoGH43_35) from Bacteroides ovatus	Banaras Hindu University	Varanasi, Uttar Pradesh	21/11/2025
11.	Prof. Arun Goyal	Synthetic Biology and Future Food Networking Forum and IBA Subject Conference	Ramada Plaza by Wyndham Maenam Riverside	Bangkok, Thailand	05/11/2025
12.	Prof. B. Anand	CRISPR-Cas Immune System: Molecules, Mechanisms and Microbes	Dynamics and Evolution of RNA Functions, ICTS-TIFR	Bangalore	26/09/2025
13.	Prof. B. Anand	Bacterial Cell Growth and Dormancy: An Interplay Between Ribosome Biogenesis and Stringent Response Pathway	Molecules to Medicine: Bioengineering for One Health, IIT Madras	Chennai	05/12/2025
14.	Prof. B. Anand	Evolutionary plasticity and Functional versatility of CRISPR-Cas Systems	Institute of Bioinformatics and Applied Biotechnology	Bangalore	28/02/2026
15.	Prof. B. Anand	Cellular Design Principles Underlying Bacterial Growth and Dormancy	48th Indian Biophysical Society Meeting & International Conference on Biomolecular Dynamics, North-Eastern Hill University	Shillong	14/03/2026
16.	Dr. Himanshu Singh	Invited speaker at the 48th Indian Biophysical Meeting on Biomolecular Dynamics	NEHU Shillong	Shillong, Meghalaya, India	13/03/2026 - 15/03/2026
17.	Dr. Himanshu Singh	Invited speaker at the Asia Pacific NMR (APNMR-NMRS) conference 2025	IISER Pune	Pune, India	25/06/2025 - 29/06/2025
18.	Dr. Himanshu Singh	Invited talk at the Department of Chemical Sciences	TIFR Mumbai	Mumbai, India	20/06/2025
19.	Prof. Kannan Pakshirajan	Sustainable production of lutein from halophilic microalgae cultivated using	Bannari Amman Institute of Technology	Sathyamangalam, Erode	24/04/2025

		anaerobic digestate and its application in poultry		District, Tamil Nadu	
20.	Prof. Kannan Pakshirajan	Biorefineries as a driver for biodiversity conservation: Opportunities and challenges	Tihu College	Tihu, Assam	15/09/2025
21.	Prof. Kannan Pakshirajan	Transitioning to a bioeconomy by 2030: A biorefinery perspective	IIT Guwahati	Guwahati, Assam	12/10/2025
22.	Prof. Kannan Pakshirajan	Biorefineries as a Driver for Low-Carbon Economy	Coimbatore Institute of Technology	Coimbatore, Tamil Nadu	15/12/2025
23.	Prof. Kannan Pakshirajan	Two-phase partitioning bioreactor and membrane bioreactor systems for the bioremediation of endocrine disrupting phthalates	Sardar Patel University	Bakrol, Anand District, Gujarat	26/02/2026
24.	Dr. Kusum K. Singh	Role of UPF3B in the nonsense mediated mRNA Decay Surveillance Pathway	ICTS, IISc	Bangalore	25/09/2025
25.	Prof. Lalit M Pandey	Surfactin and Surfactin-Inspired Peptides as Novel Strategies to Inhibit Insulin Aggregation and Amyloid Toxicity	Indian Biophysical Society	NEHU, Shillong	13/03/2026
26.	Prof. Lalit M Pandey	Integrating Traditional Knowledge and Modern Biophysics: Antidiabetic Phytometabolites and Anti-Aggregation Mechanisms of *Centella asiatica*	Centre for Indian Knowledge Systems (CIKS)	IIT Guwahati	27/02/2026
27.	Prof. Lalit M Pandey	Nanocomposite biomaterials for implants and wound healing	Department of Production and Mechanical Engineering	NIT Agartala	09/02/2026
28.	Prof. Lalit M Pandey	Microbial Biosurfactants: Bridging Biochemistry, Biotechnology, and Environmental Innovation	Malaviya Mission Teacher Training Centre	NIT Warangal	30/01/2026
29.	Prof. Lalit M Pandey	Synergistic Enhancement of Oil Recovery via Rhamnolipid-Surfactant-Salt Formulations	Biotech Research Society of India	IIT Roorkee	12/12/2025
30.	Prof. Lalit M Pandey	Gau-Vigyan: Bridging Traditional Wisdom and Modern Science	Technology Development and Utilization	Guwahati Biotech Park, Guwahati	28/07/2025

			Program for Women		
31.	Prof. Lalit M Pandey	Nano Hydroxyapatite: A Potential Bioceramic for Bone Tissue Engineering	Department of Biosciences and Bioengineering	IIT Guwahati	19/07/2025
32.	Prof. Lalit M Pandey	Microplastics from Surface Water Bodies: Challenges and Future Scopes	Department of Biosciences and Bioengineering	IIT Guwahati	05/06/2025
33.	Prof. Latha Rangan	ARKA Talk Series ()	National Institute of Horticulture Research, ICAR-IIHR	Hessaraghatta, Bengaluru, Karnataka	18/07/2025
34.	Dr. Priyadarshi Satpati	When Molecules Meet: MD Simulations Illuminate Biomolecular Recognition	IIT Bombay	Mumbai	04/12/25
35.	Prof. Rajaram Swaminathan	INVITED TALK at the 9th Asian and Oceanian Spectroscopy Conference [AOSC-2025]	Department of Chemistry, IIT Goa	Bogmallo Beach Resort, Goa	21/09/25 to 25/09/25
36.	Dr. Rajkumar P. Thummer	Sustainable healthcare through smart and bioinspired biomaterials	Parul University	Gujarat	07/08/2025
37.	Prof. Rakhi Chaturvedi	In Vitro Approaches for Scalability and Sustainability of Plant Bioprocess Engineering	Department of Biotechnology, NIT Warangal	Warangal, Telangana	21/01/2026
38.	Prof. Rakhi Chaturvedi	Sustainable Production of Plant Secondary Metabolites by the Application of Cellular Totipotency	Andhra university College of Science and Technology	Visakhapatnam, Andhra Pradesh	27/02/2026 to 28/02/2026
39.	Prof. Rakhi Chaturvedi	In vitro tissue culture strategies for secondary metabolite enhancement	47th Annual Meeting of Plant Tissue Culture Association (India), Symposium and Industry Conclave on Plant Tissue Culture for Boosting Biomanufacturing, Nutritional Security, and Climate Resilience (PTCBB)	JNU Convention Centre, Jawaharlal Nehru University, New Delhi, India	17/02/2026 to 20/02/2026

40.	Prof. Rakhi Chaturvedi	Role of science and technology in enhancing the sustainability in agriculture and afforestation	School of Arts and Sciences, Ahmedabad University	Ahmedabad, Gujarat	03/10/2025
41.	Prof. Rakhi Chaturvedi	Cellular Totipotency and Crop Improvement Utilizing Plant Tissue Culture Techniques	53rd International Plant Propagator's Society (IPPS)-AU Conference	Cairns, Australia	28/05/2025 to 31/05/2025
42.	Prof. Rakhi Chaturvedi	Application of Cellular Totipotency and Sustainable Production of Plants Secondary Metabolites	Department of Botany University of Kerala	Thiruvananthapuram, Kerala	09/04/2025
43.	Prof. Siddhartha Sankar Ghosh	Translational Research in Cancer Nanotheranostics	Netaji Subhas University of Technology	New Delhi	10/01/2026
44.	Prof. Siddhartha Sankar Ghosh	Emergence of Transitional Research Mind	NIELIT Guwahati, Gauhati University Campus	Guwahati	05/01/2026
45.	Prof. Sachin Kumar	Alpha-Synuclein–Dependent Control of Japanese Encephalitis Virus Infection in Neurons	ICMR National Institute of Virology and NIV research Foundation	Pune, Maharashtra	25/02/2026
46.	Prof. Vibin Ramakrishnan	De novo Design of Peptide Catalyst as Enzyme-mimic for Carbon Dioxide Sequestration	EGU Conference, Vienna	Vienna	02/05/2025
47.	Prof. Vibin Ramakrishnan	Introduction to Molecular Simulations	CME program on Network Pharmacology, CARI Kolkata	CARI Kolkata	17/09/2025
48.	Prof. Vibin Ramakrishnan	Integrated Machine Learning and Systems Transcriptomics for Heart Failure: Signatures, Cell States, and Upstream Regulators	Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum	Thiruvananthapuram	17/02/2021
49.	Prof. Vibin Ramakrishnan	Network Medicine	VNRVJIET, Hyderabad	Hyderabad	30/03/2026
50.	Prof. Lingaraj Sahoo	Bioinspired Innovations	Tinsukia College	Tinsukia, Assam	23/10/2025
51.	Prof. Lingaraj Sahoo	Superabsorbent Polymer and Beneficial Microbes for Sustainable Agriculture	Berhampur University	Berhampur, Orissa	01/11/2025
52.	Prof. Lingaraj Sahoo	Superabsorbent Polymer and Beneficial Microbes for Sustainable Agriculture	College of Post Graduate Studies	Barapani, Meghalaya	16/11/2025

			in Agriculture, CAU, Barapani		
53.	Prof. Lingaraj Sahoo	Superabsorbent Polymer and Beneficial Microbes for Sustainable Agriculture	Central Agricultural University	Imphal, Manipur	01/12/2025
54.	Prof. Lingaraj Sahoo	International Collaboration for Research on Agricultural Sciences and Food Technology and Industry Cooperation	Central Agricultural University	Imphal, Manipur	01/12/2025
55.	Prof. Lingaraj Sahoo	Smart Hydrogels for Sustainable Agriculture	Chandigarh University	Chandigarh, Punjab	04/02/2026
56.	Prof. Lingaraj Sahoo	Genomic approaches in crop improvement: prospects and achievements	College of Post Graduate Studies in Agriculture, CAU, Barapani	Barapani, Meghalaya	09/02/2026
57.	Prof. Lingaraj Sahoo	Genomic approaches in crop improvement: prospects and achievements	College of Post Graduate Studies in Agriculture, CAU, Barapani	Barapani, Meghalaya	09/02/2026
58.	Prof. Lingaraj Sahoo	International Cooperation in Crop Research Indo-Japan Prospective	Sikkim University	Gangtok, Sikkim	19/03/2026

VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS/INVITED LECTURES (1 APRIL 2025– 31 MARCH 2026)

Sl. No.	Name	Name of Inst./Univ./Org.	Purpose/ Name of Lecture	Date	Remarks
1.	Students and teachers from Vandya International School	Vandya International School	Laboratory demonstrations and Q&A session	22/05/2025	55 students and 5 teachers
2.	Students and teachers from Pachunga University College, Aizawl	Pachunga University College	Structured demonstration of research instrumentation and academic pathway discussion	10/03/2025	18 students and 2 teachers
3.	Students and teachers from Department of Biotechnology & Bioinformatics, NEHU Shillong	NEHU Shillong	Technical demonstrations and career interaction sessions	28/03/2025	18 students and 2 teachers
4.	Dr. Shambhu Yadav	Harvard Medical School	Dynamic tissue-specific modulation of redox stress and its impact on health and disease	16/03/26	To deliver a talk

5.	Prof. Kenji Irie	Tsukuba University, Japan	Collaborative visit to the laboratory	10/03/2025	Project accepted to LOTUS program 2025. Mr. Soham Basu PhD student is currently in Prof. Irie's lab in Tsukuba University
6.	Prof Dwipendra Thakuria	Dean of Agriculture, College of Post Graduate Studies in Agriculture, CAU, Barapani	Lecture Academia-Industry Partnership for Sustainable Development of Agriculture and Food Security in Northeast India	10/03/2026	Invited Talk to Indo-Japan Symposium
7.	Dr. T. Baba	Bharat Certis Agriscience Limited, New Delhi a subsidiary Company of Mitsui & Nisso, Japan	Joint meeting to take up Industry-Academia Joint Collaborative Research Project	10/03/2026	
8.	Prof. Tapas Manna	IISER Thiruvananthapuram	BioTalk: Microtubule Malfunctions and Chromosomal Instability: Cause and Disease Hallmarks	23/02/2026	To deliver a talk
9.	Dr. M. Michael Gromiha	Department of Biotechnology, Indian Institute of Technology Madras	Bioinformatics approaches for understanding mutational effects on protein structure and function: implications to diseases	17/06/2025	To deliver a talk
10.	Prof. Hiroka Ishoda	Institute of Life and Environmental Sciences, University of Tsukuba, Japan		05/03/2026	Interaction session with faculty members for collaboration

SEMINARS/WORKSHOPS/CONFERENCES/SHORT-TERM COURSES ORGANISED (1 APRIL 2025– 31 MARCH 2026)

Sl. No.	Name of Faculty (Convener/ Co-ordinator, etc.)	Name of Sem./Wor./Con.	Funded By	Date	International/ National	No. of participants
1.	Dr. Himanshu Singh (Organizer)	Turning the Tide on Plastic Pollution (mini symposium)	BSBE, IIT Guwahati	05/06/2025	National	—

2.	Dr. Himanshu Singh (Co-organizer)	Workshop on Confocal Microscopy	Leica Microsystems	10/02/2026-11/02/2026	National	—
3.	Dr. Himanshu Singh (Organizer)	Two-day workshop on Bio-Layer Interferometry (BLI)	IIT Guwahati	11/05/2026-12/05/2026	National	—
4.	Dr. Kapish Gupta	Workshop On Confocal Microscopy	Leica	10/02/26-11/02/26	National	60
5.	Dr. Kapish Gupta	Workshop On Introduction To Rheology	Anton Par	11/3/26	National	40
6.	Dr. Kusum K. Singh (Local organizer)	95th Annual Session and Symposium	NASI	8/12/2025 to 10/12/2025	International	~400
7.	Prof. Lalit M Pandey	One-day workshop on "Engineering Hydroxyapatite: Bridging Bone Regeneration and Antimicrobial Protection"	ANRF	19/7/2025	National	50
8.	Prof. Latha Rangan	95th Annual Session of NASI	NASI / ANRF	08-10/12/2025	National	200-250
9.	Prof. Siddhartha Sankar Ghosh (Chairperson)	ICANN 2025- The 9th International Conference on Advanced Nanomaterials and Nanotechnology, organized by IIT Guwahati, December 12-14, 2025	IIT Guwahati	December 12-14, 2025	International	~450
10.	Dr. Souptick Chanda	Custom Design and 3D Printing of Implantable Scaffolds for Orthopedic Applications	ANRF	12/3/2026	National	24
11.	Dr. Souptick Chanda	3d surgical Hands-On Workshop on Immersive Surgical Planning	3d surgical	8/9/2025	National	40
12.	Prof. Utpal Bora	Bioeconomy 2026		19/01/2026	National	~150
13.	Prof. Utpal Bora	1st Global Assamese Conference		16th January – 18th January, 2026	International	

PATENTS (1 APRIL 2025– 31 MARCH 2026)

No. of Patents Applied: 05

No. of Patents Granted: 01

Sl. No.	Name of Faculty and co researcher	Name	Date Applied/Granted	Application No.	Remarks
1.	Dr. Himanshu Singh	Smart Compact Bio System for Rapid CO2 Reduction in Enclosed Spaces	2025	202531059933	Under review
2.	Prof. Sachin Kumar	APTAMER FOR DETECTION OF NEWCASTLE DISEASE VIRUS AND EPAD-APTASENSOR THEREOF	26/08/2025	202531080836	Under review
3.	**Faculty:** Dr. Selvaraju Narayanasamy; **Co-researcher**s: Harish Kumar Rajendran, Sulaiha Juvairiya, Mohammed Askkar Deen	Metal Organic Framework-Biopolymer Hydrogel Spheres, Methods of Preparation, and Uses Thereof		202601212000 0101 [This application number is the patent registration number from R&D cell] *Note: This registration was done on 28.01.2026*	The patent application has been initiated and is under progress. The draft document for filing is under review stage.
4.	**Faculty:** Prof. Senthilkumar Sivaprakasam **Co-Researcher:** Dr. Srikanth Katla	Production of Glycosylated Human Interferon Alpha 2B in Glycoengineered *Pichia Pastoris*	20/03/2026	201731014991	Patent granted
5.	Dr. Souptick Chanda, Jaideep Singh Bhardwaj	VOIX LATTICE SYSTEM AS BONE REPLACEMENT SCAFFOLDS	**2/4/2025**	R20253045391	Applied
6.	Prof. Venkata Dasu Veeranki and Dr. Ansuman Sahoo, Dr. M. S. R. C. Murthy, Dr. Sanjukta Patra	A Process for IPTG-free expression of Recombinant Human Insulin in *Pseudomonas fluorescens*	22/07/25	202431045821	Applied

AWARDS AND HONOURS (1 APRIL 2025– 31 MARCH 2026)

Sl. No.	Name of Faculty	Name of Award	Name of Institute/ Organization/ Foundation bestowing the award	Reason for award	Form of Award (Citation/ Medal/ Cash etc)
1.	Prof. Arun Goyal	Top 2% Scientists List	Elsevier and Stanford University, USA	Excellence in the field of Enabling & Strategic Technologies (Biotechnology)	Certificate
2.	Dr. Himanshu Singh	Visiting Faculty	Central European Institute of Technology, Faculty of Science, Masaryk University, Czech Republic	Academic recognition	Visiting faculty appointment
3.	Prof. Kannan Pakshirajan	Journal Author Award	Springer Nature	For outstanding contribution to academic publishing	Plaque
4.	Dr. Kusum K. Singh	Membership	NASI	NASI membership	Certificate
5.	Prof. Lalit M. Pandey	Prof. S B Chincholkar Memorial Award	Biotech Research Society of India	Outstanding contributions in Food/Agriculture Biotechnology or Bioenergy R&D	Citation, Medal and Cash
6.	Prof. Lalit M. Pandey	Prof. S B Chincholkar Memorial Award	Biotech Research Society of India	Outstanding contributions in Food/Agriculture Biotechnology or Bioenergy R&D	Citation, Medal and Cash
7.	Prof. Latha Rangan	ABAP Senior Scientist Award	Association of Biotechnology and Pharmacy in area of Biotechnology	Contribution in the area of Biotechnology	Citation and Medal
8.	Prof. Rajaram Swaminathan	2026 Low income country Travel Award	The Biophysical Society USA	To cover costs related to travel to USA to present my work at the 70^{th} Annual Meeting in San Francisco, California, USA	Cash (US$ 3000) and certificate

9.	Prof. Rajaram Swaminathan	2026 Low income country Travel Award	The Biophysical Society USA	To cover costs related to travel to USA to present my work at the 70th Annual Meeting in San Francisco, California, USA	Cash (US$ 3000) and certificate
10.	Prof. Rakhi Chaturvedi	Springer Nature Award- Her Research, Our Future	Springer Nature	To celebrate the research contributions and to shape the future of science and innovation	Citation
11.	Prof. Sachin Kumar	Fellow of Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases (IAVMI)	Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases (IAVMI)	xxx	Medal

STUDENTS' ACHIEVEMENTS (1 APRIL 2025– 31 MARCH 2026)

Sl. No.	**Name of Student**	**Name of Award**	**Name of Institute/ Organization/ Foundation bestowing the award**	**Reason for award**	**Form of Award (Citation/ Medal/ Cash etc)**
1.	Mr. M Mukesh Kumar	2nd prize Oral Presentation Competition	International Conference on Nutraceuticals & Chronic Diseases	Oral presentation	Cash
2.	Mr. M Mukesh Kumar	DAILAB PRIME CAFÉ PLUS 2025			
3.		Advanced Industrial Science and Technology, Japan	2nd prize Best presentation	Cash	
4.	Mr. M Mukesh Kumar	Major Ashish Kumar Roy Best Presentation Award	Trust for Education and Training in Cytometry	Oral Presentation	Cash
5.	Mr Bharathwaj N	DAILAB PRIME CAFÉ PLUS 2025			
6.	Mr. Ashwani Kumar Verma	Best oral presentation award	Amity Institute of Biotechnology, Amity University, Noida	Research work on novel obligate chitobiohydrolase (AcGH18A-Ctbh) at SBB-2026	Certificate

7.	Mr. Vishwanath Yadav	Best oral presentation award	Amity Institute of Biotechnology, Amity University, Noida	Research work on unlocking bamboo recalcitrance for bioethanol at SBB-2026	Certificate
8.	Ms. Bipasha Choudhury	Best Poster Award	Banaras Hindu University, UP	Research on deinking waste paper by thermostable xylanase at 30th ACCTI Conference	Certificate
9.	Ms. Bipasha Choudhury	Best Poster Award	IBA Subject Conference 2025, Bangkok, Thailand	Research on sustainable deinking of waste paper	Certificate
10.	Mr. Vishwanath Yadav	ANRF International Travel Grant	Anusandhan National Research Foundation (formerly SERB)	Presentation on bamboo saccharification at 6th Int. Conf. on Biofuels, Italy	Travel Grant
11.	Ms. Naorem Bela Devi	Best Poster Presentation Award	IIT Bombay	Best Poster Presentation at the 10th International Conference on Advances in Energy Research (ICAER 2025) held at IIT Bombay, from 16 to 19 December 2025	Certificate
12.	Ms. Naorem Bela Devi	Best Oral Presentation Award	Manipur University; Directorate of Environment and Climate Change, Government of Manipur	Best Oral Presentation at the Manipur Science Congress 2025, held at Manipur University, from 20 to 22 December 2025	Certificate + Cash
13.	Mehak	MiTR2025 Conference, 22-24 May, 2025	IIT Ropar	Best Poster Presentation Award	Citation and Cash
14.	Chinmaya Panda	Fulbright-Nehru Doctoral Research Fellowship	United States – India Educational Foundation (USIEF)	-	Fellowship Award

15.	Smrity Sonbhadra	International Conference on Sustainable Energy and Green Technology 2025 (GCGW-SEGT 2025), 17 - 20 August 2025	University Malaya, Kuala Lumpur, Malaysia	Best Presenter Award	Citation
16.	Smrity Sonbhadra	RESEARCH & INDUSTRIAL CONCLAVE (RIC, 2025), 10-12 October, 2025	Indian Institute of Technology Guwahati, Assam	Best Oral Presentation Award	Citation
17.	Smrity Sonbhadra	World Environment Day, 05 June, 2025	Department of Biosciences and Bioengineering, Indian Institute of Technology Guwahati, Assam	Poster Presentation Award (II Prize)	Citation
18.	Mr. Sonu S S	Best poster award	Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur, Bihar / Society for Plant Biochemistry and Biotechnology (SPBB) / ICAR–IARI, New Delhi	Research on genomic tools for enhancing resilience in Amaranth.	Certificate
19.	Mr. Siddhant Saha	Best poster award	National Academy of Sciences, India	Research on a genome-to-proteome pipeline in *Mesua ferrea* revealing mechanisms of seed oil accumulation.	Certificate
20.	Ms. Himanshi Devi	2026 Student Research Achievement Award	The Biophysical Society, USA	Best Poster in Biological Fluorescence at 70^{th} meeting of Biophysical Society, San Francisco, USA	Certificate and Cheque for US$ 100.
21.	Ms. Himanshi Devi	2026 Bridging Funds award	The Biophysical Society, USA	To enable travel to San Francisco, USA for participating in the Biophysical Society meeting	Cheque for US$ 500.
22.	Mr. Simangka Bor Saikia	2026 Bridging Funds award	The Biophysical Society, USA	To enable travel to San Francisco, USA for participating in	Cheque for US$ 500.

				the Biophysical Society meeting	
23.	Mr. Naveen Raj M	DBT travel grant	DBT	For attending European Islet Study Group (EISG) Sweden	Cash
24.	Ms. Chetna Sharma	Best Rapid oral presentation	Indian Institute of Technology Roorkee, India	Rapid oral presentation	Certificate
25.	Ms. Shinjini Bhattacharya	Best poster award	9th annual convention of society of veterinary biochemists and biotechnologists of India (SVBBI) and national symposium on advancing animal health and production through biochemical and biotechnological innovations SVBBICON 2025	xxx	Medal
26.	Mr. Sushil Kumar	Best poster award	26th Indian Veterinary Congress & 33rd Annual Conference and National Symposium on "Progress and Emerging Trends in Animal Health and Production Including Poultry and Wildlife in the Global Context		Medal
27.	Mr. Sushil Kumar	Best poster award	International Conference on Emerging Trends in Multidisciplinary Research for Sustainable Future (ICETMRSF - 2026), Organized by Center for Multidisciplinary Research (CMDR), Tezpur University, Sonitpur, Assam-784028, India.		Medal
28.	Ms. Deepa Mehta	Best poster award	XXXVII Annual Convention of Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious		Medal

			Diseases (IAVMI) & National Symposium on "Strengthening Animal vis-à-vis Human Health for Addressing Challenges in the 21st Century" - IAVMICON-2026		
29.	Ms Anushka Singh	Regional Finalist	Global Sustainability Challenge 2025-26	South Asia Regional Finals	Recognized for presenting an innovative solution under the **Sustainable Energy** theme as a member of Team A2E.
30.	Mr. Jeevanantham Sathasivam	Best Oral Presentation Award	International Conference on Energy and Resource Recovery for Sustainable Circular Economy (ICERSC 2026), IIT Madras	Best Oral Presentation Award	Certification
31.	Ms. Jothika J, Mr. Ajithkumar V	Awarded a prototype development project	IIT Guwahati-DST-NEGWEN-IEDC (2025-26)	Awarded a prototype development project	An annual sum of Rs. 2,50,000/- for prototype development.
32.	Ms. Jothika J	Best Paper Award	International conference on Sustainability, Circularity, Outreach and Policy for Environment (SCOPE 2025), IIT Kanpur	Best Paper Award	Certification
33.	Ms. Jothika J	Best Poster Award	International Conference on Technical Textiles and nonwovens (ICTN 2026), IIT Delhi	Best Paper Award	Cash prize of Rs. 3000/-
34.	Mr. Jyoti Prakash Ray	Best paper award	International Conference on Environmental Pollution, Treatment and Protection'25, Barcelona, Spain	Best paper award	Certification

35.	Mr. Ragavan Chandrashekar	Best Oral Presentation (Runner-up)	Smart Materials Conference – 2025 (SMC-2025), University of Western Cape, Cape Town, South Africa.	Best Oral Presentation (Runner-up)	Certificati on
36.	Ms Rakshita Mehta	Awarded a prototype development project	IIT Guwahati-DST-NEGWEN-IEDC (2025-26)	Awarded a prototype development project	An annual sum of Rs. 2,50,000/- for prototype developm ent.
37.	Mr. Soham Basu	JNSTC-Poster Presentation Award	Indian Institute of Technology, Guwahati and Gifu University, Japan	Third prize for poster presentation at Japan-NER Academia-Industry Technology Cooperation Symposium under IITG-Gifu U JDP platform. [9^{th} – 10^{th} March 2026]	Certificate
38.	Mr. Soham Basu	FEBS Journal Prize	Indian Institute of Science (IISc), Bangalore and Federation of European Biochemical Societies	Best Poster presentation at 13th International Conference on Yeast Biology (India Yeast Meeting 2025). [3^{rd} – 6^{th} December 2025]	Certificate and Cash
39.	Ms. Anushka Dixit	Best Master's Thesis Innovation award	Research and Industrial Conclave, IIT Guwahati	Poster presentation at RIC [10^{th}-12^{th} October, 2025] held at IITG	Certificate
40.	Ms. Isha Kashyap	Travel Grant	Anusandhan National Research Foundation (ANRF-ITS) and European Molecular Biology Organisation (EMBO)	EMBO Workshop Celebrating 70 years of peroxisome research (2^{nd}-6^{th} September, 2025) at Spain	Cash
41.	Ms. Tanveera Rounaque Sarhadi	DBT-CTEP Travel Grant	DBT	To attend Membrane Contact Sites:	Certificate

				Methodology, Biology & Pathology, EMBO Workshop, Italy [28th September-3rd October, 2025]	
42.	Ms. Ankita Adhikary	Best Poster Presentation Award	Indian Institute of Technology, Guwahati	Second prize in Poster presentation at BSBE Mini Symposium, IIT Guwahati [5th June, 2025]	Memento
43.	Ms. Anushka Dixit	Khorana Scholar's award	DBT, IUSSTF, WINStep Forward.	High academic standing (June-August, 2025)	Stipend of USD 3000, round-trip airfare, and health insurance.
44.	Jaideep Singh Bhardwaj	Member of European Society of Biomechanics (ESB) since October 2025	ESB	-	-
45.	Jaideep Singh Bhardwaj	Young Scientist Award and ITS Travel Grant from ANRF to attend international conference in ETH Zurich Switzerland.	ANRF	Research Work awarded	Cash
46.	Jaideep Singh Bhardwaj	Young Scientist Award and ITS Travel Grant from UDAAN Awards 2025 sponsored by Orthotech India Pvt Ltd to attend international conference in Waterfront Conference Centre, Stockholm, Sweden	Orthotech India Pvt Ltd	Research Work awarded	Cash

47.	Dr. Ansuman Sahoo	Marie Sklodowska-Curie Actions (MSCA) Postdoctoral Fellowship	European Research Executive Agency	Postdoctoral Fellowship	Two- year Postdoctoral Fellowship at Imperial College of London, UK

FACULTY MEMBERS

Sl. No.	**Name**	**Name of the University/Institute/Org PhD degree received from**	**Designation**	**Areas of Interest**
1.	B. Anand	Indian Institute of Technology Kanpur, Kanpur	Professor	RNA Biology, CRISPR Biology, Ribosome Biogenesis
2.	Bora Utpal	Institute of Genomics and Integrative Biology, Delhi	Professor	Biomedical Engineering, Biodiversity and Bio-entrepreneurship
3.	Bose Biplab	All India Institute of Medical Sciences	Associate Professor	Systems Biology, Cell signaling, Recombinant therapeutics
4.	Chanda Souptick	Indian Institute of Technology Kharagpur, India	Assistant Professor	Biomechanics, implant design and optimization, surgical simulations and application of soft computing/AI in allied fields
5.	Chaturvedi Rakhi	University of Delhi, India	Professor	Plant Tissue Culture & Secondary Metabolites Production
6.	Chaudhary Nitin	CSIR-Centre for the cellular and Molecular Biology, Hyderabad	Professor	Peptide self-assembly and amyloid aggregates, Peptide-membrane interactions Curvature inducing proteins
7.	Das Debasish	Indian Institute of Technology Bombay	Professor	Metabolic engineering, Biochemical engineering, Modelling of fermentation process, Biofuel
8.	Dasu V. Venkata	Indian Institute of Technology Madras	Professor	Bioprocess Development, Metabolic Engineering
9.	Ghosh Siddhartha S.	Indian Institute of Chemical Biology (IICB), Kolkata	Professor	Cancer Therapeutics, Nanobiotechnology, Molecular Pathways Involving Drug Resistance and EMT
10.	Goswami Pranab	Gauhati University	Professor	Biosensors and Biofuel cells
11.	Goyal Arun	Indian Institute of Technology Kanpur, Kanpur, India.	Professor	Molecular Biology, Protein Engineering, Rational Enzyme Engineering, 3-Dimensional Structure (In silico, crystal and solution) and Function analysis of enzymes and their industrial (Biorefinery, therapeutic, food, Pulp and paper) applications.
12.	Gupta Kapish	National University of Singapore	Assistant Professor	Mechanobiology, Liver Diseases, Drug Testing

13.	Gupta Navin	Brain Computer Interfaces and Neural Engineering (BCI-NE) Group, University of Essex	Assistant Professor	Imaging Genetics, Biomedical Signal/Image Processing, Multimodal Analysis,Computer Aided Diagnosis, Biomedical Instrumentation
14.	Jaganathan Bithiah G.	Johann Wolfgang Goethe University, Frankfurt, Germany	Professor	Stem Cell Biology, Cancer signaling
15.	Kanaujia Shankar Prasad	Indian Institute of Science Bangalore	Professor	Structural Biology and Bioinformatics Studies
16.	Kumar Manish	University of Maryland, College Park, USA	Professor	Investigating the molecular basis of host–pathogen interactions in infectious diseases, with a focus on spirochetes-Leptospira interrogans and Borrelia burgdorferi. Key areas include gene expression profiling, vaccine development targeting outer membrane proteins, and the study of vector-borne zoonotic diseases with public health relevance
17.	Kumar Sachin	University of Maryland, College Park, USA	Professor	Molecular biology of paramyxoviruses, flaviviruses
18.	Kunnumakkara A. B.	Amala Cancer Research Center, Thrissur, Kerala, India, 2005 University of Calicut, Kerala	Professor	Role of inflammatory pathways in cancer development, Identification of novel biomarkers for cancer diagnosis and prognosis, Cancer drug discovery.
19.	Limaye Anil Mukund	Indian Institute of Science Bangalore	Associate Professor	Hormonal regulation of gene expression
20.	Maiti Soumen Kumar	Indian Institute of Technology Bombay	Associate Professor	Bioprocess Engg, Biofuel
21.	Mandal Biman B	Indian Institute of Technology Kharagpur	Professor	Regenerative Medicine, Biomaterials, Tissue Engineering, Stem Cells
22.	Nagotu Shirisha	University of Groningen, the Netherlands	Assistant Professor	Organelle Biology, Membrane dynamics, Cellular Ageing
23.	Pakshirajan Kannan	IIT Madras	Professor	Environmental Biotechnology, Biorefineries, Biofuels, Bioprocess Technology
24.	Pandey Lalit Mohan	Indian Institute of Technology Delhi	Associate Professor	Bio-interfaces and Biomaterials, Protein's adsorption and aggregation, Nanomaterials and composites for Biomedical applications, Environmental Chemical Engineering
25.	Patra Sanjukta	Central Food Technological Research Institute, Mysore	Professor	Enzyme and Microbial Technology Environmental Biotechnology Diagnosis and therapeutics
26.	Ramakrishnan Vibin	Indian Institute of Technology Bombay	Professor	Network medicine, Bio-Nano catalysis, Drug delivery vehicles
27.	Rangan Latha	University of Madras (Chennai) / IRRI (Philippines)	Professor	Applied biodiversity, Biofuel crops, Genome mining, Natural products, Plant evolution.
28.	Sahoo Lingaraj	Maharshi Dayanand University, Rohtak, India	Professor	Plant Biology, Precision Farming, Genome Editing

29.	Saini Gurvinder Kaur	Andhra University, Visakhapatnam	Professor	Fungal Biotechnology, Engineering entomopathogenic fungi
30.	Satpati Priyadarshi	Indian Institute of Science Bangalore	Associate Professor	Classical molecular dynamics (MD) free energy simulation, Electronic Structure calculations that predict the structure, properties, reactivity, bonding etc. of small molecules
31.	Selvaraju Narayanasamy	Indian Institute of Technology Madras, India	Associate Professor	Environmental Bioremediation, Microbial Biodiesel Production and Optimisation, Wastewater treatment via Advanced Oxidation Processes (AOPs), Bioenergy generation, Microfluidics
32.	Senthilkumar S	Central Leather Research Institute, Chennai	Professor	Biocalorimetry, Bio-Process Analytical Technology (Synthesis of recombinant proteins and value-added bioproducts), Real-time monitoring and control of bioprocess systems (BioPAT)
33.	Singh Himanshu	Tata Institute of Fundamental research (TIFR) Mumbai	Assistant Professor	Protein NMR Spectroscopy; Chemical Biology; Molecular Biophysics; Structural Biology; Protein Dynamics; DNA–Protein Interactions; Epigenetic DNA recognition
34.	Singh Kusum K	Institute of Molecular Medicine, Heinrich-Heine University of Duesseldorf, Germany	Assistant Professor	Post-transcriptional gene regulation
35.	Swaminathan Rajaram	Tata Institute of Fundamental Research	Professor	Proteins, Spectroscopy, Biochemistry
36.	Tamuli Ranjan	Centre for Cellular and Molecular Biology, Hyderabad	Professor	Fungal biology, genetics, molecular biology, cell signaling, banana fiber, rice
37.	Thummer Rajkumar P	University of Groningen, Groningen, The Netherlands	Assistant Professor	Stem Cell Engineering and Regenerative Medicine
38.	Trivedi Vishal	Central Drug Research Institute, Lucknow	Professor	Intracellular Signaling in Plasmodium falciparum