# DEPARTMENTAL ANNUAL REPORT

# (PERIOD: 1 APRIL 2017 – 31 MARCH 2018)

# DEPARTMENT OF BIOSCIENCE AND BIOENGINEERING
# IIT GAUWAHTI

**FORMAT FOR ANNUAL DEPARTMENT/CENTRE REPORT (DEPARTMENT OF BIOSCIENCE AND BIOENGINEERING)**

**(PERIOD: 1 APRIL 2017 – 31 MARCH 2018)**

1. **Year of Establishment of the Department /Centre:**2002
2. **Academic Programmes Offered:** B. Tech., M. Tech., PhD
3. **No. of Laboratories with brief introduction: (Total No: 42) Brief Description of each**

   i. **MAB (Mechanistic Approaches to Biology) Lab (Dr. B. Anand): The laboratory** employs a combination of approaches encompassing Bioinformatics & Computational Biology, Biochemical and Biophysical approaches and X-ray crystallography. The current research interest of the lab pertains to RNA Biology and Molecular Evolution.

   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. **Dr. Pranjal Chandra lab:** The lab is interested to combine biotechnology, nanotechnology, material science, and electroanalytical chemistry, approaches to address problems of biomedical significance, human health, and environmental monitoring. Specifically, the lab is interested to develop novel and commercially viable bioanalytical methods for diagnostics applications. The major research work is focused on: (i) Clinical Diagnostics (Cancer cells, DNA, RNA, bio-markers) using electroanalytical methods such as cyclic voltammetry, chronoamperometry, impedance spectroscopy, (ii) Nano-biosensors (*Aptamer, antibody, enzyme*) based biological phenomenon investigation, (iii) Porous silicon based label free self-reporting optical nanosensors, (iv) Microfluidics and Nanomachines.

   v. **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

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

vii. **Bioprocess Development Lab (Dr. Debasish Das):** The research focus of the lab is the process development for various value added products using microbes as a cell factory. The areas that are currently being pursued are: biodiesel production from freshwater microalgal isolates *Chlorella* sp. and diatoms; bioethanol from agricultural wastes, process development for hyaluronic acids from new *Streptococcus* isolates and butanol production from *Clostridium* sp. The lab aims at improving overall performance of the technology via combined modifications at the process (Biochemical engineering approach) and strain level (genetic engineering approach). The lab has expertise to create solutions for process development by combining biochemical and biological knowledge with engineering principles.

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

ix. **Laboratory of Protein Biochemistry & Biochemical Parasitology (Prof. Vikash Kumar Dubey):** The laboratory focuses on understanding protein structure and function, molecular aspects of parasitology, and drug discovery. The lab has been recognize as "Unit of excellence in Molecular and Biochemical Parasitology" by Department of Biotechnology, Government of India.

x. **Prof. Siddhartha Sankar Ghosh lab:** The laboratory focuses on development of new generation gene therapy vectors. This mainly includes development of suicide gene therapy for cancer. The lab has also set up infrastructure facilities for interdisciplinary collaborative research in the field of nanoscience and nanotechnology supported by extramural funding at the Centre for Nanotechnology, IIT Guwahati. The major area is to develop new nanoparticles, nanocomposites and nanocarriers and evaluate their antimicrobial and anticancer activities. The lab is perusing research to understand molecular mechanisms of nanoparticle mediated cell cytotoxicity. Other areas, such as, bioimaging using C-dots, metal nanoclusters, gene delivery using quantum dot embedded nanocarriers are also being persued. The lab is also interested in understanding the molecular pathways involving drug resistance.

xi. **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.

xii. **Prof. Arun Goyal Lab:** The lab research interests include Microbial Biotechnology, Molecular Biology, Protein Engineering, Structural & Functional studies of carbohydrate enzymes.

xiii. **Dr. Cota Navin Gupta:** The research interest of the lab include Imaging Genetics, Biomedical Signal/Image Processing, Multimodal Analysis, Computer Aided Diagnosis, and Biomedical Instrumentation.

xiv. **Stem Cell and Cancer Biology Group (Dr. Bithiah Grace Jaganathan):** Stem cell and cancer biology group focuses on the identification of factors affecting the differentiation of mesenchymal stem cells and the role of cancer microenvironment in cancer chemoresistance.

xv. **Structural and Computational Biology Laboratory (Dr. 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.

xvi. **Molecular Microbiology Laboratory (Dr. Manish Kumar):** The research interests of the lab include (i) Molecular interaction of host-pathogen-vector of infectious diseases, (ii) Gene expression analysis of Spirochete, *Leptospira interrrogans* and *Borrelia burgdorferi, (iii)* Development of vaccine against outer membrane protein of *Leptospira interrogans* and *Borrelia burgdorferi*, and (iv) Vector borne diseases of Zoonotic importance.

xvii. **Viral Immunology lab (Dr. 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.

xviii. **Cancer Biology Laboratory (Dr. Ajaikumar B. Kunnumakkara):** The research interests of the lab include (i) Role of inflammatory pathways in cancer development, (ii) Identification of novel biomarkers for cancer diagnosis and prognosis, (iii) Cancer drug discovery, and (iv) Development of transgenic and gene knockout mouse models for biomedical research

xix. **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

xx. **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

xxi. **Biomaterial and Tissue Engineering laboratory (Dr. Biman B. Mandal):** The laboratory is a "Unit of Excellence" as granted by DBT, Govt. of India at Biosciences and Bioengineering Department, IIT Guwahati. The lab focuses on a number of tissue engineering projects generously funded by National and International grants towards affordable human healthcare translational products.

xxii. **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.

xxiii. **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.

xxiv. **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 aggregation of various therapeutic proteins is studied, (iii) Environmental Biotechnology: The lab focuses on 3Rs. Reduce waste generation, recycle the treated waste and reuse waste as by-product or recover energy from the waste.

xxv. **Dr. Sanjukta Patra laboratory:** The research interests of the lab include enzyme applications, biotransformation, and biosensors.

xxvi. **Prof. Aiyagari Ramesh laboratory:** The research interests of the lab include Nanobiotechnology, Chemistry-Biology Interface for Developing Antibacterials and Sensors

xxvii. **Molecular Informatics and Design Group (Dr. 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.

xxviii. **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. .

xxix. **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.

xxx. **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.

xxxi. **Computational Structural Biology laboratory (Dr. Priyadarshi Satpati):** The research in the lab is focused to understand the speed and accuracy of translation using Computer Simulations. Using explicit solvent all atom molecular dynamics free energy simulations, the lab studies the protein-ligand, protein-RNA, RNA-RNA interactions and their relevance to biology. The lab is specially interested in translation factors, synthetases (aaRS), Ribosome etc.

xxxii. **Bio Process Analytical Technology (BioPAT) Laboratory (Dr. Senthilkumar Sivaprakasam):** The lab develops PAT technology for recombinant therapeutic proteins and value added compounds such as biopolymers, organic acids etc. PAT is defined as 'System for designing (process development), analysing and controlling manufacturing process, based on timely measurements of critical quality and performance attributes of raw material, in process materials and processes with the goal of ensuring final product quality'. PAT methodology envisages the identification of Critical Process Parameters (CPPs) and Critical Quality Attributes (CQAs) for every process. The CPPs are the indication of the overall reliability that a process proceed in the desired direction. Therefore, their monitoring and control establishes the uniform product quality. 'Quality by design' in the PAT emphasizes that monitoring to be accomplished not only during the process, but should begin from raw material characterization, its processing, upstream process, product recovery, downstream process and till the polishing step. Therefore, this reduces the much effort emphasized by regulatory authorities on ensuring quality.

xxxiii. **Dr. Kusum Singh Laboratory:** 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.

xxxiv. **Protein Biophysics Lab (Prof. R. Swaminatha**n): 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. Protein charge transfer spectra in the 250---800 nm region arising from charged amino acids like Lys and Glu is of special interest.

xxxv. **Neurospora Research Group (Dr. Ranjan Tamuli):** The lab is interested to understand the molecular mechanism of calcium signaling pathway using the model filamentous fungus *Neurospora crassa*. Calcium ion is a universal second messenger molecule that impacts almost all cell processes in eukaryotes. The lab hopes to

extend its research to understand the role of calcium signaling in memory, learning, and other related areas in future.

xxxvi. **Laboratory for Stem Cell Engineering and Regenerative Medicine (Dr. Rajkumar P. Thummer):** The lab focuses on generation of transgene-free induced pluripotent stem cells for biomedical applications and understanding the role of core stem cell-specific transcription factors in maintaining stem cell identity and function.

xxxvii. **Malaria Research Group (Dr. 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

xxxviii. **Dr. Selvaraju Narayanasamy Lab:** The research interest of the lab include Environmental Biotechnology, Bioprocess Engineering, and Biochemical Engineering.

xxxix. **Biomechanics and Simulations lab (Dr. Souptick Chanda):** The Lab is primarily engaged in design and optimization of various orthopaedic implants based on in vitro and in silico biomechanical testing/validations. Simulations for surgery and patient examinations training are also being envisaged at this laboratory.

xl. **Computational lab:** The computational lab is used for carrying out the Bioinformatics and Computational Biology Lab, a lab course of the B. Tech. curriculum

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

**4. Major Equipment and Facilities acquired during 1 April 2017 – 31 March 2018:**

- CytoFlex Flow Cytometer from Beckman Coulter (2 laser 6 color).
- UV-Vis Spectrophotometer from Thermo Scientific
- Eppendorf Refrigerated Centrifuge and Gradient PCR
- Muffle Furnace (Model: RT 230 'IFG-05')
- Gradient PCR Thermal Cycler (Model: T100)
- UV/Vis Double beam spectrophotometer( Model: Evolution 201)
- UV Crosslinker (Model no. CL-1000)
- 4210 Microwave Plasma Atomic Emission Spectrometer (Model: 4210 MP-AES)
- FTIR (Fourier-transform infrared spectroscopy)( Model: IRAffinity-1S WL)
- Analytical HPLC system (Model: LC-20AD)
- CD (Circular Dichroism Polarimeter) (Model: J-1500 (150W))
- Real-Time PCR and Flow cytometer
- Deep freezer (Model : U 410); Spectrophotometer (Model: Biospectrophotometer basic)
- MultiskanGO Microplate NANODROP spectrophotometer with µdrop plate (Model: MultiSkanGO Thermo Nanodrop UV-Vis)
- Dynamic Light Scattering Instrument
- FPLC & Ultracentrifuge
- FTIR, Rheometer, Fluoremeter
- Scigenics Orbital Shaker
- Quantitative RNA expression and PCR detection system (Model no. G8830A)
- Multi rotor refrigerated centrifuge (Model no. 5430R)
- Spectrophotometer for ncleic acid and protein quantification (Model no. Biospectrometer basic)
- Cary 100 UV-Vis Spectrophotometer from Agilent Technologies
- Multifuge X3R Cooling table-top centrifuge from Thermo fisher Scientific

- GC MS 7890B GC System along with 5977B MSD from Agilent Technologies
- HTL from Amar Equipments

**5. Major Areas of Research and Development:**

Cell signaling, Systems Biology, Protein Biochemistry, Molecular Biology, Immuno Prasitology, Biofuel, Biochemical Engineering, Tissue Engineering and Biomaterials, 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, Systems Biology, Bioprocess Engineering, Cancer Biology.

**6. Major initiatives and breakthrough in Research and Development during 1 April 2017 – 31 March 2018:**

- ✓ Professor V K Dubey: Evaluated CAAX prenyl protease II as a possible drug target against Leishmania donovani parasite, the causative agent of visceral leishmaniasis. Gene knockout strategy was employed to target CAAX prenyl protease II and subsequent effects were studied. CAAX prenyl protease II knockout resulted in significant decrease in growth and infectivity.
- ✓ Professor V K Dubey: Investigated the role of methionine aminopeptidase 2 (MAP2) in miltefosine induced programmed cell death (PCD) in promastigote form of *L. donovani.* Identification of novel anti-leishmanial drugs.
- ✓ Professor U Bora: The work entitled "The mitochondrial genome of Muga silkworm (*Antheraea assamensis*) and its comparative analysis with other lepidopteran insects" published in PLOS ONE was highlighted in Nature India. (doi:10.1038/nindia.2017.144 published online 24 November 2017).
- ✓ Dr. Ajaikumar B. Kunnumakkara's laboratory was inaugurated as DBT-AIST International Laboratory for Advanced Biomedicine (DAILAB) from May 8, 2017 onwards
- ✓ Dr. Ajaikumar B. Kunnumakkara's laboratory was recognized as Unit of Excellence in Cancer Drug Discovery by Dept. of Biotechnology, Govt. of India
- ✓ Dr. Ajaikumar B. Kunnumakkara: A study conducted where we showed that a highly bioavailable curcumin formulation improved symptoms and diagnostic indicators in rheumatoid arthritis patients.
- ✓ Dr. Ajaikumar B. Kunnumakkara: Published articles in collaboration with Cancer Research Center, University of Tennessee Health Science Center, Memphis, TN 38163, USA; Pamela Buffett Cancer Center, University of Nebraska Medical Center, Omaha, NE 68198, USA; Ton Duc Thang University, Ho Chi Minh City, Viet Nam; Yong Loo Lin School of Medicine, National University of Singapore; Curtin Health Innovation Research Institute, Curtin University, Perth, Australia; National University Cancer Institute, National University Health System, Singapore; University of Texas MD Anderson Cancer Center, Houston, TX, USA; Inflammation Research Center, San Diego, CA, USA and School of Pharmacy and Health Professions, Creighton University , Omaha, Nebraska, USA.
- ✓ Professor Ramesh A: Low molecular weight synthetic amphiphiles and metal complexing ligands have been explored for antibacterial and antibiofilm applications. A dual dye flow cytometry based assay was developed to compare the potency of native probiotic lactic acid bacteria in inhibiting pathogen adhesion as well as to probe the mechanistic aspects of the adhesion inhibition process on model human intestinal cells. In another research endeavor, ratiometric detection of sulfite in solution as well as in live cells using imaging tools has been accomplished.
- ✓ Dr Lalit Pandey: Biodegradable chitosan, carboxymethyl cellulose and silver nanoparticle modified cellulose nanowhiskers mediated scaffolds were synthesized successfully, exhibiting sufficient protein adsorption and mineralization capacity for bone tissue regeneration.
- ✓ Dr Lalit Pandey: Ti6Al4V surfaces were successfully modified with SAMs of amine, octyl, mixed, hybrid and COOH functional groups and tested for protein adsorption fibroblast cell adhesion and antibacterial properties. The surfaces with hybrid SAM was found to be a potential surface modifier.
- ✓ Dr Lalit Pandey: Biodegradable chitosan, polyvinylpyrrolidone, and cellulose nanowhiskers nanocomposite thin films were fabricated successfully, exhibiting high biocompatibility with excellent antibacterial activities for wound dressing applications with sustained drug release.

- ✓ Dr Lalit Pandey: Edible (coconut) oil nanoemulsions, loaded with α-tocopherol (Vitamin E) were formulated with moderate biomolecule loading capacity and excellent antibacterial activity, for drug delivery applications. 2 mL of the prepared nanoemulsion was found to sufficient for the daily dietary intake of α-tocopherol.
- ✓ Dr. Biman B Mandal**:** Developed affordable "Bioartificial Intervertebral (Spinal) Disc" for spinal injury and back pain mitigation. The research was published in PNAS and highlighted in "The Hindu" National newspaper and Rajya Sabha TV.
- ✓ Dr. Biman B Mandal**:** Developed "Bioengineered Liver Platform" to help patients suffering from liver cirrhosis. The research was published in Acta Biomaterialia and highlighted in "The Hindu" National newspaper.
- ✓ Dr. Biman B Mandal**:** Dr. Biman B Mandal**:** Developed "Bioartificial Pancreas" which naturally produce insulin towards treatment of type-1 diabetes. The research was published in ACS Biomaterials Science & Engineering and highlighted in "The Hindu" National newspaper and Nature India. Also listed in the "Yearbook 2018" published by Disha, "Quarterly Current Affairs 2017" and "General Knowledge Today".
- ✓ Dr. Biman B Mandal**:** Developed "Bioengineered Cardiac Patches" for heart tissue reconstruction. The research was published in Journal of Materials Chemistry B and highlighted in "The Hindu" National newspaper.
- ✓ Dr. Biman B Mandal**:** Developed affordable "Osteochondral Implants" for osteoarthritis management. The research was published in ACS Applied Materials and Interfaces and highlighted in Nature India and National newspaper of "The Hindu", "The Times of India", "Financial Express", "Deccan Herald", "Zee News", "India Today", "Anandabazar Patrika", and "Dainik Sambad".
- ✓ Developed highly affordable and advanced "Bioengineered Bone Grafts" which allows better integration to defect site and simultaneous vascularization. The research was published in Advanced Healthcare Materials and highlighted in "The Hindu" National newspaper.
- ✓ Dr. Biman B Mandal**:** Developed affordable "Smart Wound Healing Dressings" which heals diabetic foot ulcers in a scar free way. The research was published in Acta Biomaterialia and highlighted in "The Hindu" National newspaper, Nature India & Recommended by Faculty F1000 Prime.
- ✓ Prof. Pranab Goswami and his group has developed a novel molecular technique using high resolution melting for species-specific differentiation of malaria parasites.
- ✓ Prof. Lingaraj Sahoo: A cowpea variety resistant to Yellow Mosaic Disease caused by MYMIV (Mungbean Yellow Mosaic India Virus) was developed through RNA interference technology. A mungbean variety with improved tolerance to salinity and resistance to herbicide was developed through overexpression of *AtNHX1* and *bar* gene(s).
- ✓ Dr D Das: Development of a pilot scale facility for the ONGC Pan-IIT Centre for Bioenergy and the DBT-Unit of Excellence in Bioenergy. This pilot scale facility is a demonstration of biofuel production from microalgal Biomass in 100 L parallel plate photobioreactor; 1000 L photovoltaic airlift photobioreactor and open ponds (scaling up from 500 L to 1000 and 2000 L).
- ✓ Dr Pranjal Chandra: The work "Highly Sensitive *In Vitro* Biosensor for Enterotoxigenic *Escherichia coli* Detection Based on ssDNA Anchored on PtNPs-Chitosan Nanocomposite" highlighted as "Ultrasensitive device to detect E Coli in 20 mins" in Nature India EISSN: 1755-3180, A newsletter of Nature Publication group.
- ✓ Dr Pranjal Chandra :The work "Chitosan stabilized gold nanoparticle mediated self-assembled gliP nanobiosensor for diagnosis of Invasive Aspergillosis" highlighted as "Biosensor for detecting a fungal disease" in Nature India EISSN: 1755-3180, A newsletter of Nature Publication group.
- ✓ Prof. Rajaram Swaminathan: Proposed the role of photoinduced electron transfer in explaining electronic absorption (250—800 nm) arising from charged sidechains of amino acid residues like Lysine and Glutamate among proteins. Later showed that these spectra are sensitive changes in protein conformation and oligomeric state.

**7. Research Projects:**

**a) New Sponsored Projects (Total No: 22…)**

| Principal Investigator | Name of Project | Sponsoring Agency | Amount Sanctioned (Rs. in Lakh) | Co-Investigator | Duration |
|---|---|---|---|---|---|
| Dr. Sachin Kumar | Improved classical swine fever virus vaccine and its diagnostics using | Department of Biotechnology, India. "Unit of Excellence in | 84.08 | NA | 2016-2019 |

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| | Newcastle disease virus as a vector | Virology in NE region | | | |
| Dr. Sachin Kumar | Development of reverse genetic based recombinant Newcastle disease virus model for understanding immune response in patients infected with Hepatitis C virus | Department of Biotechnology, India | 105.90 | Dr. Vishal Trivedi | 2016-2019 |
| Prof. L Rangan | Genome and transcriptome sequencing of aromatic rices from North Eastern region | Department of Biotechnology, India | 90.05 | Gayatri Venkataraman, MSSRF Chennai Sudip Mitra, IITG Swarup Parida, New Delhi | 2017-2020 |
| Prof. L Rangan | Genome and transcriptome sequencing of aromatic rices from North Eastern region | Department of Biotechnology, India | 50.21 | Swarup Parida, New Delhi Sudip Mitra, IITG | 2017-2020 |
| Prof. Kannan Pakshirajan | The development and implementation of sensors and treatment technologies for freshwater systems in India | Department of Science and Technology, India | 54.89 | Prof. Tapan K. Dutta, Bose Institute, Kolkata | 2017-2020 |
| Prof. Kannan Pakshirajan | A novel membrane assisted bioprocess for heavy metal removal and recovery as nano powders from acid mine drainage | Council of Scientific and Industrial Research (CSIR), India | 22.53 | Prof. G. Pugazenthi | 2017-2020 |
| Prof. Kannan Pakshirajan | Novel biological treatment process for water recycle-reuse and energy conservation in refinery industry | Department of Science and Technology, India | 42.75 | Prof. G. Pugazenthi & Dr. Ajaikumar B. Kunnumakkara | 2017-2020 |
| Prof. Kannan Pakshirajan | Hydrogenogenic carbon monoxide conversion under mesophilic condition using anaerobic granular sludge biomass for biodesulphurization | Department of Biotechnology, India | 38.70 | Prof. G. Pugazenthi | 2017-2020 |
| Dr Vibin Ramakrishnan | Design, Synthesis and Characterization of Metal Impregnating Nano-assemblies using Peptide Model Systems; Applications in heavy metal entrapment in North-East Region. | Department of Biotechnology, India | 154.89 | NA | 3 years |
| Dr Vibin Ramakrishnan | Peptide Based Molecular Constructs for Tumor Homing and Small Molecule Delivery | Board of Research in Nuclear Sciences (BRNS) | 31.33 | Nitin Chaudhary | 3 years |

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| Dr Shankar Prasad Kanaujia | Structural and functional investigation of mammalian cell entry (MCE) proteins from human pathogens: development of structure-based lead molecules | Department of Science and Technology, India -SERB | 42.51 | - | 3Years |
| Dr. Ankita Gupta | Biochemical and biophysical studies of rRNA methyltransferase from *Helicobacter pylori* | Department of Biotechnology, India -RA | 4.82 | Prof. Shankar Prasad Kanaujia (Mentor) | 2017-2019 |
| Dr Manish Kumar | Characterization of predicted novel extracellular proteins of pathogenic *Leptospira interrogans* | Indian Council of Medical Research | 37.96 | Dr. Sachin Kumar | 2017-2020 |
| Dr Lalit Pandey | An advanced integrated process for the treatment of sewage plant effluent using bio-based antimicrobial metal biosorbents and photocatalytic materials | Department of Science and Technology, India -UKIERI | 17.15 | Dr. Animes Kr. Golder (IITG), Dr. K H. Lau and Dr. Aruna Ivaturi (University of Strathclyde, Glassgow) | 2018-2020 |
| Dr. Biman B Mandal | Functional collagen nanoparticle impregnated silk nano-ceramic composite 3D matrices for flat bone regeneration | Department of Biotechnology, India | 87.70 | Dr. R.P. Thummer | 2018-2021 |
| Dr. Biman B Mandal | Fabrication of biocompatible scaffolds for delivery of stem cells in myocardial infarct model: in search of an ideal cardiac patch | Department of Biotechnology, India | 67.10 | Dr. R.P. Thummer | 2018-2021 |
| Dr. Biman B Mandal | Bioengineered 3D constructs for cartilage repair, osteochondral regeneration and high throughput drug screening towards osteoarthritis management | Department of Science and Technology, India | 46.81 | Nil | 2018-2021 |
| Dr. Biman B Mandal | Use of silk from north-east India for culture and transplantation of corneal endothelial cells | Department of Biotechnology, India | 43.65 | Dr. P. Sukumar | 2018-2020 |
| Prof. G J N Rao | Biotechnological interventions for crop improvement | DBT Visiting Research Professorship Programme in NER | 17.90 | Prof. Lingaraj Sahoo (Host) | 1 year |
| Dr. Avishek Dey | Generation of aphid resistant marker-free transgenic mustard through RNAi-mediated gene silencing | Department of Science and Technology, India ISPIRE Project | 60.00 | Prof. L Sahoo (Mentor) | 2017-2022 |
| Dr. Sanjeev Kumar | Identification of novel and conserved microRNAs | Department of Science and | 6.00 | Prof. L Sahoo (Mentor) | 2018-2020 |

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| | involved in drought stress regulation in mungbean | Technology, India -SERB NPDF, New Delhi | | | |
| Dr. Sharmili Roy | Paper based point-of-care biomedical devise prototype for pathogenic microorganism detection (Approved: SERB File Number: PDF/2017/002924) | Department of Science and Technology, India -SERB NPDF, New Delhi | 6.00 | Dr. Pranjal Chandra (Mentor) | 2018-2020 |

**b) Ongoing Sponsored Projects (Total No: 47)**

| Principal Investigator | Name of Project | Sponsoring Agency | Amount Sanctioned (Rs. in Lakh) | Co-Investigator | Duration |
|---|---|---|---|---|---|
| Dr. Sachin Kumar | INSPIRE faculty award for New castle disease virus | Department of Science and Technology | 35.00 | NA | 2012-2017 |
| Prof. Rakhi Chaturvedi | Mapping Yellow Mosaic Virus (YMV) tolerance trait loci in *Vigna radiata* (L.) Wilczek using doubled haploids | Department of Biotechnology, India | 68.90 | Prof. Soom Nath Raina | 2017 - 2019 |
| Prof. Rakhi Chaturvedi | In vitro production of doubled haploids in Tea (*Camellia sinensis* L.) | Department of Biotechnology, India | 64.58 | Dr. Vishal Trivedi | 2014-2018 |
| Dr. Shankar Prasad Kanaujia | Structural investigation of sugar ABC transporters in *Mycobacterium tuberculosis* and thermophiles: applications to the development of drug carriers and biosensors | Department of Biotechnology, India -UExcel | 126.38 | - | 3 years |
| Dr. Shankar Prasad Kanaujia | Understanding the mechanism of ABC-type metal sequestering proteins: structure-based novel drug development against human pathogens | Department of Biotechnology, India -Twin | 73.55 (52.23 for IITG and 22.32 for NCCS Pune) | Dr. Vikash Kumar Dubey | 3 years |
| Dr Manish Kumar | Study on the Caseinolytic proteases of *Leptospira interrogans*, a promising target for treating bacterial infection | SERB, Department of Science and Technology, India | 70.18 | Dr. Shankar Prasad Kanaujia | 2016-2019 |
| Dr. Ajaikumar B. Kunnumakkara | A comparative study of the population chronically exposed to arsenic in two different demographic regions of Eastern India: Identification of responsible genes and susceptible population | Department of Biotechnology, Govt. of India | 52.99 | - | 2017-2020 |
| Dr. Ajaikumar B. Kunnumakkara | Development of Novel Akt/mTOR Inhibitors for Oral Cancer Prevention and Treatment | Department of Biotechnology, Govt. of India | 149.50 | Dr. Madumita Roy, CNCI, Kolkata | 2017-2020 |

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|---|---|---|---|---|---|
| Dr. Ajaikumar B. Kunnumakkara | Liposome Encapsulated Azadiradione for Triple Negative Breast Cancer Treatment | Department of Science and Technology, Govt. of India | 6.30 | Prof. Farid Badria, Egypt | 2017-2019 |
| Prof. S.S. Ghosh<br><br>(Project coordinator) | DBT Programme Support on Fundamental Molecular Investigations in Biotechnology - Phase II | Department of Biotechnology, India | 723.04* (Total with various project with different faculty members) | Prof. P. Goswami<br><br>Prof. L. Sahoo<br><br>Dr. B. Bose<br><br>Prof. A. Ramesh | 2016 onwards |
| Dr. Kusum K. Singh | To investigate how Apoptosis and Splicing-Associated Protein (ASAP) complex interface with splicing and connects Exon Junction Complex (EJC). | Department of Science and Technology, India -SERB | 42.96 | Dr. Shankar P. Kanaujia | 2016-2019 |
| Dr. Rajkumar P. Thummer | Direct reprogramming of human fibroblasts to functional cardiomyocytes for cell therapy | Department of Science and Technology, India -SERB | 40.12 | Dr. Shirisha Nagotu | 3 years (06/2016-05/2019) |
| Dr. Rajkumar P. Thummer | Generation of transgene-free human induced pluripotent stem cells using non-genetic approaches for cell therapeutic applications | Department of Biotechnology, India | 85.28<br><br>(51.31 for IITG & 33.97 for NCCS) | Dr. Shirisha Nagotu; Dr. Nibedita Lenka (NCCS, Pune) | 3 years (11/2016-10/2019) |
| Dr. Nitin Chaudhary | Investigations into structural organization and curvature-dependent membrane binding of alpha synuclein | Department of Biotechnology, India | 63.23 to IITG (Project in collaboration with RCB Gurgaon and RCU, Belagavi) | Dr. Vibin Ramakrishnan | 2017-2020 |
| Dr. B. Anand | Mapping the hierarchical participation of assembly factors during ribosome assembly | Department of Biotechnology, India | 97.96 | - | 3 yrs |
| Dr. B. Anand | Mechanistic Insights into the Functional Landscape of Sensory and Regulatory RNAs | Department of Science and Technology, India -SERB | 29.96 | - | 3 yrs |
| Dr. B. Anand | Mechanistic Insights into the Adaptation Stage of CRISPR-Cas Immune System | Department of Biotechnology, India | 43.23 | - | 3 yrs |
| Dr Lalit Pandey | Mechanistic Insight of Shear Induced Aggregation of Proteins and the Effect of Transition Metal Ions | Department of Science and Technology, India ,SERB | 46.32 | | 2016-2019 |
| Dr Lalit Pandey | Thermodynamics of Protein Aggregation in Bulk Solution and in the presence of Surfaces | INSPIRE Program, Department of Science and | 35.00 | | 2015-2020 |

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| | | Technology, India | | | |
| Dr. Biman B Mandal | North East silk biomaterials based injectable hydrogels for drug delivery and tissue engineering | Department of Biotechnology, India | 134.05 | Nil | 2016-2019 |
| Dr. Biman B Mandal | North east silk based bioengineered vascular conduits | Department of Biotechnology, India | 72.04 | Dr. P. Sukumar | 2017-2020 |
| Dr. Biman B Mandal | Bioartificial Pancreas to Treat Diabetes | Department of Science and Technology, India | 35.00 | Nil | 2013-2019 |
| Dr. Bithiah Grace Jaganathan | Study of Cancer Promoting Role of CD90/THY1 in Leukemia Associated Stroma | Department of Biotechnology, India | 25.00 | Dr. Anil M Limaye | 3 years |
| Dr. Bithiah Grace Jaganathan | BMP signaling in osteolytic bone metastasis of breast cancer | Indian Council of Medical Research | 20.00 | Dr. Anil M Limaye<br>Dr. Gayatri Gogoi (AMCH) | 2 years |
| Dr. Bithiah Grace Jaganathan | Study of RhoA Signaling in Bone Metastasis of Breast Cancer | Department of Science and Technology, India ,SERB | 40.55 | - | 3 years |
| Prof. Pranab Goswami | Studies and Application of Redox Enzymes for Bioelectronics Devices | Department of Biotechnology, India | 145.34 | Prof. S. S. Ghosh | 5 years |
| Dr. Shirisha Nagotu | Organelle dynamics and cellular ageing in yeast | Department of Biotechnology, India | 85.00 | Dr. Avinash Kale – CEBS, Mumbai<br>&<br>Dr. Rajkumar Thummer, IITG | 3 years |
| Dr. Shirisha Nagotu | Peroxisome and inter-organelle communication in yeast | Department of Science and Technology, India -SERB | 32.00 | Dr. Rajkumar Thummer | 3 years |
| Prof. Arun Goyal | Cloning, expression, biochemical and *in vitro* analysis of therapeutic chondroitin lyase and oligosaccharides from *Pedobacter saltans.* | Council of Scientific and Industrial Research (CSIR), India | 19.71 | Dr. A.B. Kunnumakkara | 3 |
| Prof. Arun Goyal | DBT-PAN-IIT Center for Bioenergy<br>(No. BT/EB/PAN IIT/2012)<br><br>1. Improvement of hydrolytic enzymes by protein engineering for higher activity and SSF of plant carbohydrates to ethanol (PI)<br>2. Development of *Clostridium* sp. as a cell factory for butanol production: Metabolic & biochemical engineering approach. (Co-PI) | Department of Biotechnology, India | 92.08 Lakh (AG)<br><br>1.74 Crores (IITG)<br><br>22.5 Crores (Overall) | Dr. D. Das | 5 |
| Dr. Vikash Kumar Dubey | Unit of excellence in molecular and biochemical parasitology: Investigation on evolutionary | DBT Unit of excellence in | 105.55 | | 2015-2018 |

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| | pressure for unique redox metabolism of *Leishmania* parasite | molecular and biochemical parasitology: Investigation on evolutionary pressure for unique redox metabolism of *Leishmania* parasite | | | |
| Prof. Siddhartha Sankar Ghosh (PI) | Novel nanoscale materials targeted towards antimicrobial and anticancer activities | Department of Biotechnology, India, Twinning with Delhi University | 145.86 | Prof. Arun Chattopadhyay<br><br>Dr. Biplab Bose | 3 years |
| Prof. S.S. Ghosh (PI) | Investigation on the Molecular Mechanism of Nanomaterial-Cellular Interactions to Develop Potential Therapeutics | Department of Biotechnology, India | 89.09 (amount sanctioned for the R&D grant-I) | Dr. B. Bose<br><br>Prof. A. Ramesh | 2016 onwards |
| Dr Pranjal Chandra | Development of electrochemical genosensor for detection of biological warfare agents | IIT Guwahati | 5.00 | NA | 2016-2018 |
| Dr Pranjal Chandra | Development of bi-functional electrochemical nanobiosensor for bacterial exotoxin detection: Implication towards screening of toxin producing bacterial isolates | Department of Science and Technology, India | 38.00 | Anil m. Limaye | 2016-2020 |
| Dr Pranjal Chandra | Development of electrochemical sensor integrated microfluidic system for label free multiplex detection of neurotransmitters in neuronal cell line | Department of Biotechnology, India | 96.50 | Shirisha Nagotu from IIT G And Shalini Gupta from IIT Delhi | 2016-2019 |
| Dr Pranjal Chandra | Nonenzymatic aptamer based electrocatalytic biomedical device prototype for diagnostic and therapeutic applications | Department of Science and Technology, India | 47.14 | NA | 2016-2019 |
| Prof. Lingaraj Sahoo | Functional validation of yield related genes in scented rice of Northeast India | Department of Biotechnology, India | 56.50 | Prof. M. V. Rajam, Delhi University South Campus, New Delhi | 2016-2019 |
| Prof. Lingaraj Sahoo | Development of transgenic chilli cv. Bhut Jolokia for resistance to viruses causing leaf curl disease using RNA interference (RNAi) | Department of Biotechnology, India | 81.36 | Prof. S Chakraborty JNU, New Delhi | 2016-2019 |
| Prof. Lingaraj Sahoo | Integrated biorefinery approach towards production of sustainable fuel and chemicals from Algal biobased systems | Department of Biotechnology, India, Indo-Brazil project | | | 2016-2019 |
| Prof. Lingaraj Sahoo | Development of Abiotic Stress Resilient Tropical Pulses Through Tailoring of ABA Receptor Genes | Department of Biotechnology, India | 155.62 | Dr. B. Bose IIT Guwahati | 2016-2021 |
| Prof. Lingaraj Sahoo | Exploring the binding space to develop an optimal transcriptional control system for abiotic stress tolerance in crops | Department of Biotechnology, India | 111.42 | Dr. Biblab Bose IIT Guwahati | 2014-2018 |

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| Prof. Lingaraj Sahoo | Development of transgenic cowpea for insect resistance through RNA interference technology | Department of Biotechnology, India | 78.70 | Prof. M. V. Rajam, Delhi University South Campus, New Delhi | 2015-2018 |
| Dr Debasish Das | DBT Pan-IIT Centre for Bioenergy | Department of Biotechnology, India | 171.16 | Arun Goyal | 05 |
| Dr Debasish Das | ONGC Pan-IIT Centre for Bioenergy | Oil and Natural Gas Corporation Limited | 181.723 | Soumen Kr. Maiti | 04 |
| Dr Debasish Das | DBT, Unit of Excellence U-Excel (Bioenergy) | Department of Biotechnology, India | 107.62 | NA | 03 |
| Dr. Anand Tiwari (Mentor: Dr. Ranjan Tamuli) | Functional characterization and role of TMSF2 , a NRAMP family member , in the life cycle of *Neurospora crassa* | Department of Science and Technology, India -SERB | 31.50 | - | 3 years |

**c) Completed Sponsored Projects (Total No: 34)**

| **Principal Investigator** | **Name of Project** | **Sponsoring Agency** | **Amount Sanctioned (Rs. in Lakh)** | **Co-Investigator** | **Duration** |
|---|---|---|---|---|---|
| Dr. Sachin Kumar | Improved Infectious Bursal Disease Virus Vaccines Using Newcastle Disease Virus Vector | Department of Biotechnology, India | 72.04 | Dr Nitin Chaudhary | 2012-2015 |
| Dr. Sachin Kumar | Role of N-glycans of Newcastle disease virus fusion protein in the host immune signaling molecules | Department of Atomic Energy, India | 16.80 | NA | 2013-2016 |
| Dr. Vibin Ramakrishnan | Design and Characterization of Polypeptide constructs as Prototypes for Bio-sensing and Imaging Applications. | Council of Scientific and Industrial Research (CSIR), India | 10.67 | NA | 2 years |
| Dr. Shankar Prasad Kanaujia | Understanding the mechanism of substrate delivery through solute binding proteins related to ABC transporters | Department of Science and Technology, India -SERB | 47.19 | - | 4 years |
| Dr. Vikash Kumar Dubey | Optimization of novel antileishmania scaffold 4-(4,4,8-Trimethyl-7-oxo-3-oxabicyclo[3.3.1]non-2-yl)-benzoic acid methyl ester, a oxabicyclo[3.3.1]nonanones: A mechanistic study | Department of Biotechnology, India | 25.66 | Dr. Anil Saikia Chemistry | 2015-2017 |

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| Dr. Vikash Kumar Dubey | Identification of novel drug targets of *Leishmania donovani:* Studies on CAAX prenyl protease I and II of the pathogen | Department of Biotechnology, India | 73.69 | | 2015-2017 |
| Dr. Ajaikumar B. Kunnumakkara | An investigation on the expression of various protein tyrosine kinases and their phosphorylated forms in different stages of the development of oral squamous cell carcinoma | Department of Biotechnology, India | 76.50 | | 2014-2017 |
| Dr. Ajaikumar B. Kunnumakkara | An Investigation of the Therapeutic Potential of Butein Isolated from Toxicodendron vernicifluum Against Human Oral Squamous Cell Carcinoma | Department of Science and Technology, Govt. of India | 22.55 | | 2014-2016 |
| Dr. B. Anand | "Molecular Mechanism of Ribosome Assembly in Bacteria" | Department of Biotechnology, India | 70.202 | - | 3 yrs |
| Rajaram Swaminathan | Investigating the role of protein dynamics on the function of few disordered proteins | Biotech Consortium of India Limited | 98.20 | None | 3 years |
| Dr. Lalit Pandey | Kinetic of initial cell adhesion on surfaces with mono and mixed self-assembled monolayers (SAMs) | IIT Guwahati | 5.00 | | 09/22/2015 to 09/22/2017 |
| Dr. Biman B Mandal | Silk2Heal | Department of Biotechnology, India | 74.70 | Dr. P. Sukumar | 2014-2017 |
| Dr. Biman B Mandal | Electrospun Silk Bioglass Scaffold for Interfacial Tissue Engineering | Department of Science and Technology, India -UKIERI | 15.50 | Dr. P. Sukumar | 2015-2017 |
| Dr. Biman B Mandal | Development of novel tissue engineered silk biomaterial based wound dressing patch for diabetic foot ulcers | Department of Biotechnology, India | 56.96 | Dr. P. Sukumar | 2014-2017 |
| Dr. Biman B Mandal | Stem Cell Based Bioengineering of Annulus Fibrosus in an Intervertebral Disc model using North-East Silk Biomaterials | Department of Science and Technology, India | 54.50 | Nil | 2013-2017 |
| Dr. Biman B Mandal | Understanding the role of cellular cross talks for cartilage tissue repair using a 3D co-culture tissue model | Department of Biotechnology, India | 37.06 | Nil | 2013-2016 |
| Dr. Biman B Mandal | Stimulation of stem cell differentiation on silk fiber reinforced composite with tunable strength and degradation towards enhanced osteogenesis | Department of Science and Technology, India | 23.00 | Nil | 2013-2016 |
| Dr. Biman B Mandal | Mechanically strong silk composite matrices for bone tissue engineering | Indian Council of Medical Research | 10.00 | Nil | 2012-2015 |
| Dr. Biman B Mandal | Bioengineered silk vascular grafts for blood vessel engineering | Department of Atomic Energy | 17.00 | Nil | 2012-2015 |

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| Prof. Arun Goyal | Development of novel thermophilic glycoside hydrolases and carbohydrate binding modules and exploiting their properties for bioethanol production and for food and industrial applications | Indo-Portugal Joint Project, DST, New Delhi | 8.04 | NA | 3 |
| Prof. Lingaraj Sahoo | Development of transgenic cowpea for virus resistance using the tool of RNA interference | Department of Biotechnology, India | 83.34 | Dr. Sunil Mukherjee, formerly at ICGEB, New Delhi | 2012-2016 |
| Prof. Lingaraj Sahoo | A novel energy efficient hydrodynamic cavitations technique for extraction of oil from micro algae for biodiesel production | Council of Scientific and Industrial Research (CSIR), India | 18.96 | Dr. V. V. Gaud, Dept. of chemical engineering, IITG | 2013-2016 |
| Prof. Lingaraj Sahoo | Plant probiotics to improve crop production in low nutrient soil | DST-JSPS Indo-Japan project | 6.94 | Prof. Hiroyuki Koyama, Gifu University, Japan | 2015-2017 |
| Prof. Lingaraj Sahoo | Development of Pod Borer Resistant Transgenic Pigeonpea and Chickpea | Indian Council of Agricultural Research | 58.00 | Coordinator: Prof. S. K. Sen, BREF Biotech, IIT Khragpaur | 5 years |
| Prof. Lingaraj Sahoo | Development and evaluation of transgenic mungbean over expressing AtNHX1 and AVP1 for salt tolerance | Department of Biotechnology, India | 93.12 | | 3 years |
| Prof. Lingaraj Sahoo | Molecular cloning and functional characterization of heavy metal stress specific phytochelatin synthase gene from Eichhornia crassipes | Department of Biotechnology, India | 78.40 | - | 5 years |
| Prof. Lingaraj Sahoo | Cloning and characterization of STOP1 transcription factor from cowpea and its functional analysis | Department of Science and Technology, India, Indo-Japan | 22.50 | Prof. H. Koyama, Gifu University, Japan; Prof. S.K. Panda (AUS) | 3 years |
| Prof. V. V. Goud | Super critical fluid extraction of natural antioxidants for food preservation from spices and non conventional fruits endemic in North eastern region | Department of Biotechnology, India | 75.65 | Prof. Lingaraj Sahoo | 3 years |
| Prof. Lingaraj Sahoo | Molecular cloning and functional Analysis of Na+ /H+ antiporter gene in Cowpea (Vigna unguiculata L Walp) | Department of Biotechnology, India | 44.88 | Dr. S. K. Panda (AU, Assam) | 03 years |
| Prof. Lingaraj Sahoo | Amino acid polymorphism in conserved Motifs in HMA proteins and Heavy Metal Resistance in Plants | Indo-Japan DST Project | 4.20 | Prof. H. Koyama, Gifu University, Japan; Dr. Satoshi Iuchi, RIKEN BRC, Japan; Dr. S. K. Panda (AUS) | 03 years |

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| Prof. Lingaraj Sahoo | Genetic engineering of Cowpea (Vigna unguiculata) for resistance to pod borer and bruchid | Department of Biotechnology, India | 11.62 | Dr. L. Rangan | 03 years |
| Prof. Lingaraj Sahoo | Genetic engineering of Cowpea (Vigna unguiculata L. Walp) for storage pest resistance | Department of Science and Technology, India | 4.92 | - | 03 years |
| Prof. Lingaraj Sahoo | Cloning of elite germplasm of Jatropha for large scale plantation | Defence Research and Development Organisation (Center for Energy) | 9.98 | - | 03 years |
| Prof. Lingaraj Sahoo | Development of micropropagation technology for Jatropha: A potential biofuel plant | North Eastern Development Finance Corporation Ltd | 4.00 | - | 03 years |

**8. Consultancy (Total No: 3)**

| Principal Investigator | Name of Project | Sponsoring Agency | Amount Sanctioned (Rs. in Lakh) | Co-Investigator | Duration |
|---|---|---|---|---|---|
| Prof. Rakhi Chaturvedi | Mass propagation of *Stevia* plantations using in vitro and in vivo means and imparting knowledge on their cultivation among farmers and enterprenuers. | Green-Rev Agro Pvt. Ltd. | 5.00 | - | September – March 2018 |
| Dr. Ajaikumar B Kunnumakkara | Studies of the effect of CurQfen in comparison with standard curcumin | Akay Flavours and Aromatics Pvt. Ltd | 4.00 | -- | 2018-2019 |
| Prof. Lingaraj Sahoo | Oil analysis and DNA fingerprinting of Jatropha and Patchouli accessions | North Eastern Development Finance Corporation Ltd (NEDFi) | 0.55 | Prof. P. Mahanta | 1.6 years |

**9. Research Publications**

**<u>International and National Journal</u> (PERIOD: 1 APRIL 2017 – 31 MARCH 2018)**

**Total No. of International Journal: 230**

**Total No. of National Journal: 2**

**Format for submission of Research Publications/Journals**

| Sl. No. | Authors | Paper Title | Journal Name | Year | Volume | Issue Number (If any) | Starting Page | Ending Page |
|---|---|---|---|---|---|---|---|---|
| 1 | P. Kumar, V. Srivastava, R. Chaturvedi, D. Sundar, V. S. Bisaria | Elicitor enhanced production of protoberberine alkaloids from in vitro cell suspension cultures of Tinosporacordifolia (Willd.) Miers ex Hook. F. &Thoms | Plant Cell Tissue and Organ Culture | 2017 | 130 | 2 | 417 | 426 |

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| 2 | V. K. Mishra, R. Bajpai, R. Chaturvedi | An efficient and reproducible method for development of androgenic haploid plants from in vitro anther cultures of Camellia assamica ssp. Assamica (Masters) | In Vitro Cell and Developmental Biology | 2017 | 53 | | 239 | 248 |
| 3 | S. Das, M. Sharma, D. Saharia, K. Sarma, E. Muir, U. Bora | Electrospun silk-polyaniline conduits for functional nerve regeneration in rat sciatic nerve injury model | Biomedical Materials | 2017 | 12 | 4 | | |
| 4 | A. Sett, B. B. Borthakur, J. Dev Sharma, A. C. Kataki, U.Bora | DNA aptamer probes for detection of estrogen receptor α positive carcinomas | Translational Research | 2017 | 183 | | 104 | 120 |
| 5 | Y. D. Singh, P. Mahanta, U. Bora | Comprehensive characterization of lignocellulosic biomass through proximate,ultimate and compositional analysis for bioenergy production | Renewable Energy | 2016 | 103 | | 490 | 500 |
| 6 | P. D. Thungon, A. Kakoti, L. Ngashangva, P. Goswami | Advances in developing rapid, reliable and portable detection systems for alcohol | Biosensors and Bioelectronics | 2017 | 97 | | 83 | 99 |
| 7 | P. Jain, B. Chakma, N. Singh, S. Patra, P. Goswami | Metal–DNA Interactions Improve signal in High-Resolution Melting of DNA for Species Differentiation of Plasmodium Parasite | Molecular Biotechnology | 2017 | 59 | 6 | 179 | 191 |
| 8 | S. Sevda , I. A. Reesh | Energy Production in Microbial Desalination Cells and Its Effects on Desalination | Journal of Energy and Environmental Sustainability | 2017 | 3 | | 53 | 58 |
| 9 | A. Hasan, G. Waibhaw, S. Tiwari, K. Dharmalingam, I.Shukla, L. M. Pandey | Fabrication and characterization of chitosan, polyvinylpyrrolidone, and cellulose nanowhiskers nanocomposite films for wound healing drug delivery application | J Biomed Mater Res Part A | 2017 | 105 | 9 | 2391 | 2404 |
| 10 | Gaurav Pandey, Jahnu Saikia, Sajitha Sasidharan, Deep C Joshi, Subhash Thota, Harshal B. Nemade, Nitin Chaudhary and Vibin Ramakrishnan | Modulation of Peptide Based Nano-Assemblies with Electric and Magnetic Fields | Scientific Reports | 2017 | 7 | | 2726 | 9 |

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| 11 | Karabi Saikia, Yalavarthi Durga Sravani, Vibin Ramakrishnan and Nitin Chaudhary | Highly potent antimicrobial peptides from Nterminal membrane-binding region of E. coli MreB | Scientific Reports | 2017 | 7 | | 42994 | 9 |
| 12 | Prakash Kishore Hazam, Gaurav Jerath, Anil Kumar, Nitin Chaudhary and Vibin Ramakrishnan | Effect of tacticity-derived topological constraints in bactericidal peptides. Modulation of Peptide Based Nano-Assemblies with Electric and Magnetic Fields | Biochimica et Biophysica Acta | 2017 | doi:10.1016/j.bbamem.2017.05.002 | | | |
| 13 | V. Sinha, K. Pakshirajan, N. A. Manikandan and R. Chaturvedi | Kinetics, biochemical and factorial analysis of chromium uptake in a multi-ion system by Tradescantia pallida (Rose) DR Hunt | International Journal of Phytoremediation | 2017 | 19 | 11 | 1007 | 1016 |
| 14 | L. Goswami, N. A. Manikandan, K. Pakshirajan and G.Pugazhenthi | Simultaneous heavy metal removal and anthracene biodegradation by the oleaginous bacteria Rhodococcusopacus | 3Biotech | 2017 | 7 | | 1 | 9 |
| 15 | L. Goswami, R. V. Kumar, N. A. Manikandan, K. Pakshirajan and G. Pugazhenthi | Simultaneous polycyclic aromatic hydrocarbon degradation and lipid accumulation by Rhodococcusopacus for potential biodiesel production | Journal of Water Process Engineering | 2017 | 17 | | 1 | 10 |
| 16 | N. Gupta, N. A. Manikandan and K. Pakshirajan | Realtime lipid production and dairy wastewater treatment using Rhodococcusopacus in a bioreactor under fedbatch, continuous and continuous cell recycling modes for potential biodiesel application | Biofuels | 2017 | | | 1 | 7 |
| 17 | S. Arun, N. A. Manikandan, K. Pakshirajan, G. Pugazhenthi and M. B. Syiem | Cu (II) removal by Nostocmuscorum and its effect on biomass growth and nitrate uptake: A photobioreactor study | International Biodeterioration & Biodegradation | 2017 | 119 | | 111 | 117 |
| 18 | V. Sinha, N. A. Manikandan, K. Pakshirajan and R.Chaturvedi | Continuous removal of Cr (VI) from wastewater by phytoextraction using Tradescantia pallida plant based vertical subsurface flow constructed wetland system | International Biodeterioration & Biodegradation | 2017 | 119 | | 96 | 103 |
| 19 | L. Goswami , M. T. Namboodiri, R. V. Kumar, K. | Biodiesel production potential of oleaginous Rhodococcusopacus grown on biomass gasification wastewater | Renewable Energy | 2017 | 105 | | 400 | 406 |

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| | Pakshirajan and G. Pugazhenthi | | | | | | | |
| 20 | S. Kumar , A. A. Prabhu, V. V. Dasu, and K. Pakshirajan | Batch and fed-batch bioreactor studies for the enhanced production of glutaminase-free L-asparaginase from Pectobacteriumcarotovorum MTCC 1428 | Preparative Biochemistry and Biotechnology | 2017 | 47 | 1 | 74 | 80 |
| 21 | B. Nath, S. Kumar | Emerging variant of genotype XIII Newcastle disease virus from Northeast India | Acta Trop | 2017 | 172 | | 64 | 69 |
| 22 | V. Saxena, A. Hasan, S. Sharma, L. M. Pandey | Edible oil nanoemulsion: An organic nanoantibiotic as a potentialbiomolecule delivery vehicle | International Journal of Polymeric Materials and Polymeric Biomaterials | 2017 | 10.1080/00914037.2017.1332625 | | | |
| 23 | Kedar Sharma, Shadab Ahmed, Carlos M.G.A. Fontes, Shabir Najmudin and Arun Goyal | Low-resolution structure analysis of α-L-arabinofuranosidase (*Ct*GH43) by SAXS. | Acta Crystallographica Section A | 2017 | A73 | | C236. | |
| 24 | Ritesh S. Malani, Shubham Patil, Kuldeep, Sankar Chakma, Arun Goyal and Vijayanand Suryakant Moholkar | Mechanistic analysis of ultrasound-assisted biodiesel synthesis with $Cu_2O$ catalyst and mixed oil feedstock using continuous (packed bed) and batch (slurry) reactors. | Chemical Engineering Science | 2017 | 170 | | 743 | 755 |
| 25 | Seema Patel, Aruna Rani and Arun Goyal | Insights into the immune manipulation mechanisms of pollen allergens by protein domain profiling | Computational Biology and Chemistry | 2017 | 70 | | 31 | 39 |
| 26 | Rwivoo Baruah, Barsha Deka and Arun Goyal | Purification and characterization of dextransucrase from *Weissella cibaria* RBA12 and its application in *in vitro* synthesis of prebiotic oligosaccharides in mango and pineapple juices. | LWT - Food Science and Technology | 2017 | 84 | | 449 | 456 |
| 27 | M.Gopi Kirana, Kannan Pakshirajan and Gopal Das | A new application of anaerobic rotating biological contactor reactor for heavy metal removal under sulfate reducing condition | Chemical Engineering Journal | 2017 | 321 | | 67 | 75 |
| 28 | Omega L. Diengdoh, Mayashree B. | $Zn^{2+}$ sequestration by Nostoc muscorum: study of thermodynamics, equilibrium | Environmental Monitoring | 2017 | 189 | | 314 | 327 |

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|---|---|---|---|---|---|---|---|---|
| | Syiem, Kannan Pakshirajan and Amar N. Rai | isotherms, and biosorption parameters for the metal | and Assessment | | | | | |
| 29 | *C.N.Gupta*, V.Calhoun, J. Turner et al | Biclustered Independent Component Analysis (B-ICA) for Complex Biomarker and Subtype Identification from Structural Magnetic Resonance Images in Schizophrenia | Frontiers in Psychiatry (Methods) | 2017 | https://doi.org/10.3389/fpsyt.2017.00179 | | | |
| 30 | Saumya Prasad, Imon Mandal, Shubham Singh, Ashim Paul, Bhubaneswar Mandal, RavindraVenkatramani and Rajaram Swaminathan | Near UV-Visible electronic absorption originating from charged amino acids in a monomeric protein | Chemical Science | 2017 | 8 | | 5416 | 5431 |
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**<u>Conference/Workshop/Seminar/Symposia</u> (PERIOD: 1 APRIL 2017 – 31 MARCH 2018)**

**Total No. of papers published in Conference Proceedings: 168**

**Format for submission of papers published in Conference Proceedings**

| Sl. No. | Authors | Paper Title | Name of Conference/ Workshop/ Seminar/ Symposia Proceedings | Year | Starting Page | Ending Page |
|---|---|---|---|---|---|---|
| 1 | Das M and Kumar S | Independent evolution of genotype xiii Newcastle disease viruses from india: a panzootic threat | National Seminar on Opportunities and challenges of translational research in the frontier areas of Animal Biotechnology and V Annual Convention of SVSBT". (SVSBT) at OUAT 23rd and 24th September (Best Oral Award) | 2017 | | |
| 2 | Kumar S | Newcastle disease virus as a tool for animal vaccine and diagnostics | Lead paper talk on International Workshop on *"One Health and Sustainable Economic Development* 13th to 19th November, 2017 School of Animal Biotechnology and School of Public Health and | 2017 | | |

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| | | | Zoonoses Guru Angad Dev Veterinary and Animal Sciences University Ludhiana, Punjab-141004 | | | |
| 3 | Kumar S | Newcastle disease virus as a tool for poultry vaccine and Diagnostics | lead speaker XXXIV Annual Conference of Indian Poultry Science Association (IPSACON 2017) on 28-30 November 2017 at NIMHANS Convention Centre, Bengaluru | 2017 | | |
| 4 | Kumar S | Application of nanotechnology in animal disease diagnosis | Advances in Molecular techniques in Animal Health and Production with particular reference to pigs, ICAR-NRC on Pig, Rani, Guwahati, Assam | 2017 | | |
| 5 | Chakrabartty I, Rangan L | *Alpinia nigra*: The unexplored ore of Zingiberaceae for future therapeutics | Indo-Japan Bilateral Symposium for Future Perspectives of Bioresource Utilization in North East India (IJBS'17) 1st-4th February 2018, IIT Guwahati, | 2018 | | |
| 6 | Chakrabartty I, Panda AN, Khare A, Rangan L | FT-IR, FT-Raman, NMR and SERS studies of labdane diterpene from *Alpinia nigra* | National Workshop on Fluorescence and Raman Spectroscopy (FCS), 17th – 21st December 2017, IIT Guwahati, pp 123 | 2017 | | |
| 7 | Chakrabartty I, Rangan L | Understanding the unique inhibitory potential of (E)- labda – 8 (17), 12 – diene – 15, 16 – dial, a bioactive compound from *Alpinia nigra*, on the growth kinetics of *Candida albicans* | Bioprocessing India, 9th – 11th December 2017, IIT Guwahati | 2017 | | |
| 8 | Chakrabartty I, Khare A, Panda AN, Rangan L* | Vibrational spectroscopic studies of bioactive labdane diterpene from seeds of *Alpinia nigra* in conjugation with Cu nanoparticles; | International Conference on "Sophisticalted Instruments in Modern Research" (ICSIMR), 30th June-1st July 2017, IIT Guwahati | 2017 | | |
| 09 | Sadokpam S, Chakrabartty I, Rangan L | Formulation strategies and anti-candidal assessment of a labdane-type diterpene from *Alpinia nigra* | Translational Research on Natural Products for Therapeutic Uses (TRNPTU), 21st November 2017, IASST Guwahati , pp 24nigra; | 2017 | | |

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|---|---|---|---|---|---|---|
| 10 | Singh A, Rangan L, Swaminathan R | UV-Visible absorbance and fluorescence of KARANJIN in different solvents and solvent mixture | National workshop on " Fluorescence and Raman Spectroscopy (FCS 2017)" 17th -21th December 2017, IIT Guwahati, India | 2017 | Rahul GS, Rangan L | |
| 11 | Rahul GS, Rangan L | Study of expression of repetitive elements and their application for gene linked marker development in *Pongamia pinnata;* | Genomics Analysis & Technology Conference (GATC 2018), 7th - 9th January 2018, Guwahati University. | 2018 | | |
| 12 | Gupta MK, Rangan L | 3.5-dihydroxy-4'7-dimethoxyflavone: Isolation and characterization from *Alpinia nigra* | Trends in Biochemical and Biomedical Research (TBBR), 13th – 15th February 2018, Banaras Hindu University, Varanasi. | 2018 | | |
| 13 | Chakrabartty I, Vijayasekhar A, Rangan L | Viability assessment of bacteria under the treatment of (E)-labda-8(17), 12-diene-15, 16-dial, a bioactive compound from the seeds of *Alpinia nigra* | Translational Research on Natural Products for Therapeutic Uses (TRNPTU), 21st November 2017, IASST Guwahati. | 2017 | | |
| 14 | Reshmi D, Rangan L | Genome size and Ty1 copia retroelements in biofuel crops | 24th ISCB Frontier Research in Chemistry & Biology Interface, 11th-13th January 2018, Manipal University, Jaipur. | 2018 | | |
| 15 | Chakrabartty I, Rangan L | *Alpinia nigra*: The unexplored ore of Zingiberaceae for future therapeutics | Indo-Japan Bilateral Symposium for Future Perspectives of Bioresource Utilization in North East India (IJBS'17) 1st-4th February 2018, IIT Guwahati, | 2018 | | |
| 16 | Peeyushi Verma and Rakhi Chaturvedi | Optimization of culture conditions in bioreactor for scale up of cell biomass in *Lantana Camara* L. | National Symposium on Plant Biotechnology | 2018 | 154 | 154 |
| 17 | A. Balakumaran and Rakhi Chaturvedi | Totipotency of endosperms of *Musa Bulbisiana* under *in vitro* conditions | National Symposium on Plant Biotechnology | 2018 | 17 | 17 |
| 18 | Rakhi Chaturvedi | *In vitro* anther culture and haploid plant production in *Camellia* species to generate homozygous plants with the possibilities of accumulation of bioactive metabolites. | Indo-Japan Bilateral Symposium, IJBS | 2018 | 21 | 21 |

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| 19 | Virendra Kumar Gautam and Rakhi Chaturvedi | Mass clonal propagation of elite *Stevia rebaudiana* (Bertoni): A commercial and medicinal plant. | Indo-Japan Bilateral Symposium, IJBS | 2018 | 124 | 124 |
| 20 | Virendra Kumar Gautam and Rakhi Chaturvedi | *In vitro* micropropagation of elite *Stevia rebaudiana* Bertoni plants. | Bioprocessing India | 2018 | 181 | 181 |
| 21 | Vartika Srivastava and Rakhi Chaturvedi | Optimized micropropagation protocol to establish high-yielding true-to-type plantations of elite genotypes of *Tinospora cordifolia* for consistent production of therapeutic compounds. | International Plant Propagators Society (IPPS), Wilsonville, Oregon, USA | 2017 | 5 | 5 |
| 22 | Rakhi Chaturvedi | Cellular Totipotency and Bioaccumulation Capabilities of Plant Cells using Plant Tissue Culture Techniques. | 2nd PAN IIT BIOTECH MEET 2017 on Synthetic Biology and Cardiovascular diseases | 2017 | 18 | 18 |
| 23 | V. K Mishra, Ruchira Bajpai, Rakhi Chaturvedi | In Vitro anther cultures of *Camellia assamica* (Masters) for haploid plant production and possibilities of accumulation of Catechins, Caffeine and Theophylline in them | World Congress on In vitro Biology, Raleigh, North Carolina, USA | 2017 | 536 | 536 |
| 24 | A. Sinharoy and K. Pakshirajan | Bioconversion of carbon monoxide to hydrogen in a moving bed biofilm reactor | International conference of waste management, Recycle – 2018 | 2018 | | |
| 25 | T. Paul, K. Pakshirajan and G. Pugazhenthi | Biological treatment of Refinery wastewater using oleaginous/hydrocarbon oclastic *Rhodococcus opacus* for potential Triacylglycerol (TAG) production | International Conference on Waste Management (RECYCLE 2018) | 2018 | | |
| 26 | T. Paul, K. Pakshirajan and G. Pugazhenthi | Optimization of media and process conditions for high biomass production of *Rhodococcus opacus* from refinery | Indo- Japan Bilateral Symposium on Future Perspective of Bio-resource Utilization In North-Eastern Region" (IJBS- 2018) | 2018 | | |

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| | | wastewater for potential bio-oil production | | | | |
| 27 | A. Sinharoy and K. Pakshirajan | Effect of iron nanoparticle on biohydrogen production form carbon monoxide using a gas lift bioreactor with anaerobic granular sludge biomass | International Conference on Advanced Nanomaterials and Nanotechnology, ICANN-2017 | 2017 | | |
| 28 | A. Sinharoy and K. Pakshirajan | Effect of process conditions on biological sulphate reduction using carbon monoxide in a gas lift reactor | Bioprocessing India 2017 | 2017 | | |
| 29 | M.M.T. Namboodiri and K. Pakshirajan | Solid State fermentetaio of rice straw for chitosan production by a novel *Penicillium citrinum* isolate | Bioprocessing India 2017 | 2017 | | |
| 30 | M. M. T. Namboodiri and K. Pakshirajan | Chitosan production from Penicillium citrinum biomass for value addition and resource recovery from industrial wastewater | International Conference in Challenges in Environmental Science & Engineering | 2017 | | |
| 31 | Surjith Ramasamy and K. Pakshirajan | Lutein production from halophilic microalgae utilizing waste anaerobic digestate as a cheap substrate | RAER 2017 | 2017 | | |
| 32 | R. Gadela, A. A. Prabhu, L. Goswami, B. Mandal, Arun S., V. V. Dasu and K. Pakshirajan | Dairy wastewater as a cheap substrate for production of lipids and β-carotene using Rhodotorula mucilaginosa | Bioprocess India 2017 | 2017 | | |
| 33 | T. Paul, L. Goswami, K. Pakshirajan and G. Pugazhenthi | Optimization of micro-nutrients and process parameters for treatment of refinery wastewater by oleaginous Rhodococcus opacus for potential triacyl-glycerol (TAG) production | Bioprocess India 2017 | 2017 | | |
| 34 | L. Goswami, N. Arul Manikandan, J. Christon Ringle Taube, K. | Evaluation of cheaply produced biochar from biomass gasification effluent for simultaneous polycyclic | International Conference on Challenges in Environmental Science and Engineering | 2017 | | |

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| | Pakshirajan and G. Pugazhenthi | aromatic hydrocarbon biodegradation and lipid accumulation by *Rhodococcus opacus* | | | | |
| 35 | L. Goswami, N. Arul Manikandan, K. Pakshirajan and G. Pugazhenthi | Biodegradation of low molecular weight polycyclic aromatic hydrocarbons in ternary component system by Rhodococcus opacus: Factorial design analysis and degradation pathway elucidation | International Conference on Emerging Trends in Biotechnology for Waste Conversion | 2017 | | |
| 36 | L. Goswami, J. Christon Ringle Taube, K. Pakshirajan and G. Pugazhenthi | Characterization and potential application of effluent derived biochar for simultaneous enhancement in fluoranthene degradation and lipid accumulation by *Rhodococcus opacu* | National symposium on Recent Advancements in Environmental Research | 2017 | | |
| 37 | G. Roy, L. Goswami, K. Pakshirajan and G. Pugazhenthi | Dairy wastewater treatment by oleaginous Rhodococcus opacus using a batch operated stirred tank reactor and biomass separation using atubular ceramic membrane for potential biodiesel production | National symposium on Recent Advancements in Environmental Research | 2017 | | |
| 38 | T. Paul, K. Pakshirajan and G. Pugazhenthi. | Treatment of Refinery wastewater using oleaginous *Rhodococcus opacus* for potential bio-oil production | One day symposium on Recent Advancements in Environmental Research (RAER-2017) | 2017 | | |
| 39 | L. Goswami, K. Pakshirajan and G. Pugazhenthi | Optimization of fatty acid methyl esters production from Rhodococcus opacus utilizing anthracene as the sole carbon source in a batch stirred tank reactor | National Seminar on Petroleum Biotechnology and Bioenergy | 2017 | | |
| 40 | Vivek Prakash, Ranjit Ranbhor and Vibin Ramakrishnan | Design of Novel Hetero-Tactic Fluorescent Proteins by Automated Design Approaches | INPEC 2017: The 23rd INPEC Meeting: Protein Structure, Function and Engineering. Bose Institute Kolkota | 2017 | | |
| 41 | Sajitha Sasidharan and Vibin Ramakrishnan | Hybrid Magnetic Organic –Inorganic Nanoadsorbents for | ICN: 31-2017: International Conference on Nanotechnology: | 2017 | | |

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| | | Sequestration of Chromium | Ideas, Innovations and Initiatives. IIT Roorkee | | | |
| 42 | Angshu Dutta and Shankar Prasad Kanaujia | Functional annotation, classification and assignment of translocation pathway of phospholipases C | Research Conclave 2018, IIT Guwahati | 2018 | | |
| 43 | Prerana Gogoi and Shankar Prasad Kanaujia | Structural and functional characterization of a presumed homologue of the regulatory subunits of eIF2B | Research Conclave 2018, IIT Guwahati | 2018 | | |
| 44 | Prerana Gogoi and Shankar Prasad Kanaujia | Structural and functional characterization of ribose-1,5-bisphosphate isomerase in archaea | 24th Congress and General Assembly of International Union of Crystallography (IUCr 2017), Hyderabad, India | 2017 | | |
| 45 | Monika Chandravanshi and Shankar Prasad Kanaujia | Structural insight into the glycerophosphocholine binding protein of ABC transporter | 24th Congress and General Assembly of International Union of Crystallography (IUCr 2017), Hyderabad, India | 2017 | | |
| 46 | Suraj Kumar Mandal and Shankar Prasad Kanaujia | *In silico* characterization of a potential Zn+ ABC transporter | 24th Congress and General Assembly of International Union of Crystallography (IUCr 2017), Hyderabad, India | 2017 | | |
| 47 | Angshu Dutta and Shankar Prasad Kanaujia | UgpB protein dominantly follows Sec translocation pathway | 24th Congress and General Assembly of International Union of Crystallography (IUCr 2017), Hyderabad, India | 2017 | | |
| 48 | Prerana Gogoi and Shankar Prasad Kanaujia | Architecture of ribose-1,5-bisphosphate isomerase, an enzyme unique to archaea | National Seminar on Crystallography (NSC-45). IIT (BHU) Varanasi, India. | 2017 | | |
| 49 | Angshu Dutta and Shankar Prasad Kanaujia | Deciphering the structural aspects of an antimicrobial peptide importer in gram negative bacteria for developing drugs | National Seminar on Crystallography (NSC-45). IIT (BHU) Varanasi, India. | 2017 | | |
| 50 | Kumar M | Immunogenic Lipoprotein LP46 of *Leptospira interrogans* interacts with host extracellular matrix components | Opportunities and Challenges of Translational Research in the Frontier Areas of Animal Biotechnology, OUAT National seminar, Bhubaneswar. | 2017 | - | - |
| 51 | Dutta A., Dubey T., Singh K. K. and Anand A. | SpliceVec: distributed feature representations for splice junction prediction. | The sixteenth Asia Pacific Journal Conference 2018 | 2018 | | |

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| 52 | S. Arora and R. Swaminathan | Use of interactive graphical tools to demonstrate changes in time-resolved fluorescence intensity decays | Biophysical Society 62nd Annual Meeting | 2018 | 183a | 184a |
| 53 | Mohd. Ziauddin Ansari, Amrendra Kumar, Dileep Ahari, Anurag Priyadarshi, Padmavathi Lolla, Rashna Bhandari and Rajaram Swaminathan | Protein Charge Transfer Absorption Spectra: An Intrinsic Probe to Monitor Structural and Oligomeric Transitions in Proteins | Biophysical Society 62nd Annual Meeting | 2018 | 586a | 586a |
| 54 | Varun Saxena and Lalit M. Pandey | International conference on Nanotechnology: Ideas, innovations and Initiatives 2017 | IIT Roorkee | , 2017 | | |
| 55 | Swati Sharma, Poulami Datta and Lalit M. Pandey | Bioprocessing India 2017 Beyond Conventions | IIT Guwahati | , 2017 | | |
| 56 | Sunayan Deka and Lalit M. Pandey | ICANN-2017 | IIT Guwahati | 2017 | | |
| 57 | Laipubam Gayatri Sharma, Abhishek Roy and Lalit M. Pandey | ICANN-2017 | IIT Guwahati | 2017 | | |
| 58 | Swati Sharma and Lalit M. Pandey | International conference on waste management RECYCLE-2018 | IIT Guwahati | 2018 | | |
| 59 | Abhishek Roy and Lalit M. Pandey | International Symposium on Advances in Sustainable Polymers, ASP17 | IIT Guwahati | 2018 | | |
| 60 | Sharbani Kaushik, Priyanki Das, Pranab Goswami | Paper based biofuel cell with photosynthetic microbial anode and air breathing enzymatic cathode. | *Fourth International Symposium on Advances in Sustainable Polymers (ASP-17)* held at IIT Guwahati | 2018 | - | - |
| 61 | Babina Chakma, Priyamvada Jain, Naveen. K. Singh and P. Goswami | bel-free colorimetric detection of histidine rich proteins using glutathione functionalized silver nanoparticles probe. | *International conference on sophisticated instruments in Modern Research*, Organized by CIF, IIT Guwahati | 2017 | - | - |
| 62 | Sharbani Kaushik and Pranab Goswami | Optically and electronically active hybrid nanobiocomposite for cyanobacteria based photosynthetic microbial fuel cell. | *International conference on sophisticated instruments in Modern Research*, Organized by CIF, IIT Guwahati | 2017 | - | - |

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| 63 | Mrinal Sarma, Mohammed Golam Abdul Quadir, Rupam Bhaduri and Pranab Goswami | Synechococcus sp. BDU140432 as anodic biocatalyst on polyaniline-polypyrrole copolymer coated electrodes for biofuel cell applications. | *International conference on sophisticated instruments in Modern Research*, Organized by CIF, IIT Guwahati | 2017 | - | - |
| 64 | Priyanki Das and Pranab Goswami | Silk sericin for enhancing the conductivity and stability of Graphite paste ink, | International conference on sophisticated instruments in Modern Research, Organized by CIF, IIT Guwahati | 2017 | | |
| 65 | Mrinal Kumar Sarma, Mohammed Golam Abdul Quadir, Rupam Bhaduri, Sharbani Kaushik, Pranab Goswami | Development of photosynthetic Microbial Fuel Cell for azo dye degradation using cyanobacteria based magnetic nanoparticles functionalized anode. | Bioprocess 2017, Held at IIT Guwahati | 2017 | | |
| 66 | Mrinal Kumar Sarma, Mohammed Golam Abdul Quadir, Rupam Bhaduri, Sharbani Kaushik, Pranab Goswami | Magnetic nanoparticles as anode material to facilitate electron transfer in a Synechococcus sp BDU 140432 catalyzed Photosynthetic Microbial Fuel cell, | ICANN 2017, IIT Guwahati | 2017 | | |
| 67 | Sharbani Kaushik, Pranab Goswami | Quantum dots and Graphene Nanoplatelets in a Silk film matrix stimulates cyanobacterial photosystems to generate steady current in a PMFC. | 5$^{th}$ International Conference on Advance Nanomaterials and Nanotechnology, ICANN 2017, held at IIT Guwahati | 2017 | | |
| 68 | Smita Das, Naveen Kumar Singh, Vinay B and Pranab Goswami | Carbon dots as peroxidase mimetic catalyst for detection of $H_2O_2$ and cholesterol | 5th International Conference on Advanced Nanomaterials and Nanotechnology (ICANN)-2017, Organised by Centre for Nanotechnology, IIT Guwahati | 2017 | | |
| 69 | Sharbani Kaushik and Pranab Goswami | "FRET-guided surging of cyanobacterial photosystems improves and stabilizes current in photosynthetic microbial fuel cell", | Young scientists Colloquium 2017 (YSC 2017) organised by Materials Research Society of India (MRSI), Kolkata Chapter, IIEST, Shibpur, | 2017 | | |
| 70 | Sharbani Kasuhik and Pranab Goswami | "CdTe-Silk fibroin-Graphene based hybrid materials support FRET to cyanobacterial photosystems and improvelight to current conversion efficiency in | ACS Symposium, IIT Guwahati, | 2017 | | |

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| | | a fuel cell setup through directelectron transfer mechanism", | | | | |
| 71 | M.G.Abdul Quadir, Mrinal K. Sarma, Prof. Pranab Goswami | "Transducing light to current: Cyanobacteria as anodic biocatalyst in biofuel cell setup | Presented at 58th Annual Conference of Association of Microbiologists of India (AMI-2017) &International Symposium on "Microbes for Sustainable Development: Scope & Applications" (MSDSA-2017), held at Babasaheb Bhim Rao Ambedkar University, Lucknow, Uttar Pradesh 226025 | 2017 | | |
| 72 | Priyanki Das and Pranab Goswami | Development of membrane less biofuel cell on paper substrate for rapid, reliable and low cost detection of alcohol. | Bioprocessing India 2017" held at IIT Guwahati, during | 2017 | | |
| 73 | Naveen Kumar Singh, P Thungon, Vinay B, Pranab Goswami | Cdot based aptasensor for malaria diagnosis based on Plasmodium falciparum glutamate dehydrogenase as biomarker, | h International Conference on Advanced Nanomaterials and Nanotechnology, ICANN-2017, | 2017 | | |
| 74 | Kedar Sharma and Arun Goyal | Green synthesis of copper nanoparticles using arabinoxyloglucan as stabilising agent for antimicrobial applications. | International Conference on Drug Discovery: Biotechnology & Pharma at Cross Roads. February 15-17, 2018, Department of Biotechnology, Thapar University, Patiala, India. | 2018 | 44 | 44 |
| 75 | Shweta Singh, Arun Dhillon and Arun Goyal | Cloning of wild-type endoglucanase (BaGH5) from Bacillus amyloliquefaciens SS35 and its mutant enzyme BaGH5-UV2 from its UV mutant strain and mutant enzyme BaGH5-EMS7 from UV/EMS mutant strain and analysis of induced mutations in the genes. | Indo-Japan Bilateral Symposium on Future Perspective of Bioresource Utilization in North-Eastern Region, February 1- 4, 2018, IIT Guwahati. | 2018 | 118 | 118 |
| 76 | Ajit Kumar, Shweta Singh, Vikky Rajulapati, Arun Goyal | Optimization of pretreatment of Lantana camara stem as lignocellulosic biomass for bioethanol. | Indo-Japan Bilateral Symposium on Future Perspective of Bioresource Utilization in North-Eastern Region, February 1- 4, 2018, IIT Guwahati. | 2018 | 96 | 96 |
| 77 | Abhijeet Thakur, Carlos M.G.A. Fontes and Arun Goyal | Application of PsGH43 in combination with other xylanolytic enzymes for conversion of lignocellulosic biomass into reducing sugars. | Indo-Japan Bilateral Symposium on Future Perspective of Bioresource Utilization in North-Eastern Region, February 1- 4, 2018, IIT Guwahati | 2018 | 99 | 99 |
| 78 | Shweta Singh and Arun Goyal | Strain improvement of Bacillus amyloliquefaciens SS35 by UV and chemical | 2nd International Conference on Sustainable Energy and Environmental Challenges (SEEC- | 2017 | 184 | 184 |

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| | | mutagenesis for producing hyperactive mutant strain for improved β-glucanase and xylanase activities. | 2018). Dec 31 2017- Jan 3, 2018, IISc Bangalore, Bengaluru. | | | |
| 79 | Arup Jyoti Borah, Mriganka Saha, Prachi Arya, Shivangi, Arun Goyal and Vijayanand S. Moholkar | Extraction of lignin and its characterization from various invasive weeds for Biorefinary prospect. | Bioprocessing India, Recent Trends in Bioprocessing for Healthcare, Energy and Environment, Dec 9-11, 2017, IIT Guwahati, Assam India. | 2017 | 118 | 118 |
| 80 | Vikky Rajulapati and Arun Goyal | Cloning, expression, purification and biochemical characterization of a full length pectin methylesterase (CtPMEf) of family 8 carbohydrate esterase (CE8) from Clostridium thermocellum. | Bioprocessing India, Recent Trends in Bioprocessing for Healthcare, Energy and Environment, Dec 9-11, 2017, IIT Guwahati, Assam India. | 2017 | 174 | 174 |
| 81 | Abhijeet Thakur and Arun Goyal | Sourdough fermentation using a novel α-L-arabinofuranosidase (PsGH43) from Pedobacter saltans. | Bioprocessing India, Recent Trends in Bioprocessing for Healthcare, Energy and Environment, Dec 9-11, 2017, IIT Guwahati, Assam India. | 2017 | 135 | 135 |
| 82 | Priyanka Nath, Arun Dhillon and Arun Goyal | Protein engineering of endo β-1-4 glucanase (CtGH5) from Clostridium thermocellum by site-directed mutagenesis for development of mutant with enhanced activity. | Bioprocessing India, Recent Trends in Bioprocessing for Healthcare, Energy and Environment, Dec 9-11, 2017, IIT Guwahati, Assam India. | 2017 | 70 | 70 |
| 83 | Ajit Kumar and Arun Goyal | Pretreatment optimization of Lantana camara for the lignocellulosic bioethanol production. | 86th Annual Meeting of Society for Biological Chemists, India, Nov. 16-19, Jawaharlal Nehru University, New Delhi, India. | 2017 | 366 | 366 |
| 84 | Vikky Rajulapati, Arun Dhillon and Arun Goyal | Application of recombinant pectinolytic enzymes from Clostridium thermocellum in textile industry. | 86th Annual Meeting of Society for Biological Chemists, India, Nov. 16-19, Jawaharlal Nehru University, New Delhi, India. | 2017 | 328 | 328 |
| 85 | Abhijeet Thakur and Arun Goyal | Cloning, expression, purification and biochemical characterization of first α-L-arabinofuranosidase (PsGH43) from Pedobacter saltans. | 86th Annual Meeting of Society for Biological Chemists, India, Nov. 16-19, Jawaharlal Nehru University, New Delhi, India. | 2017 | 329 | 329 |
| 86 | Kedar Sharma, Vikky Rajulapati, Inês Lobo Antunes and Arun Goyal | SAXS analysis and structure modelling of endo β-1, 4 xylanase (PsGH10A) from Pedobacter saltans. | 86th Annual Meeting of Society for Biological Chemists, India, Nov. 16-19, Jawaharlal Nehru University, New Delhi, India. | 2017 | 332 | 332 |

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| 87 | Arun Dhillon and Arun Goyal | Insights into structure and substrate binding mode of rhamnogalacturonan lyase, CtRGL from Clostridium thermocellum. | 86th Annual Meeting of Society for Biological Chemists, India, Nov. 16-19, Jawaharlal Nehru University, New Delhi, India. | 2017 | 334 | 334 |
| 88 | Krishan Kumar and Arun Goyal | In silico and CD based structural characterization of endo-β-1, 3-glucanase (CtLam81) of family 81-glycoside hydrolase from Clostridium thermocellum. | 58th International Annual Conference of Association of Microbiologists of India, Nov. 16-19, 2017, Babasaheb Bhimrao Ambedkar University, Lucknow, UP. | 2017 | 344 | 344 |
| 89 | Arun Dhillon, Kedar Sharma, Vikky Rajulapati and Arun Goyal | Rgl-CBM35 of family 35 Carbohydrate Binding Module (CBM) from Clostridium thermocellum represents first CBM targeting rhamnogalacturonan I and mediating binding by two sites. | 23rd INPEC (International Network of Protein Engineering Centers) Meeting Protein Structure, function and Engineering, 9-11 Nov 2017, Bose Institute, Kolkata. | 2017 | 56 | 56 |
| 90 | Ritesh S. Malani, Arun Goyal and Vijayanand S. Moholkar | Mechanistic investigations in ultrasound-assisted biodiesel synthesis from mixed-oil feedstock and heterogeneous base catalyst. | 3rd Asia-Oceania Sonochemical Society Conference (AOSS-3). 14-16th September 2017, SRM Research Institute, SRM University, Kattankulathur, Chennai, Tamil Nadu, India. | 2017 | 81 | 81 |
| 91 | Kedar Sharma and Arun Goyal | Biochemical characterization and deciphering the mode of action of recombinant endo β-1, 4 xylanase (PsGH10) from Pedobacter saltans DSM12145. | 14th BRSI Convention and International Conference (BRSI-2017), Oct 08-10, 2017, CSIR-NEERI, Nagpur. | 2017 | 265 | 265 |
| 92 | Kedar Sharma, Shadab Ahmed, Carlos M.G.A. Fontes, Shabir Najmudin and Arun Goyal | Low-resolution structure analysis of α-L-arabinofuranosidase (CtGH43) by SAXS. | 24th Congress & General Assembly of the International Union of Crystallography 2017 (IUCr 2017) August 21-28, Hyderabad, India. | 2017 | C236 | C236 |
| 93 | Anil Kumar Verma, Arun Goyal, Filipe Freire, Carlos M.G.A. Fontes and Shabir Najmudin | Crystal structure and reaction mechanism of glucuronoxylan endo-β-1, 4-xylanase. | 24th Congress & General Assembly of the International Union of Crystallography 2017 (IUCr 2017) August 21-28, Hyderabad, India. | 2017 | C235 | C235 |
| 94 | Vikky Rajulapati, Kedar Sharma, Arun Dillon and Arun Goyal | Structural characterisation of a recombinant pectin methylesterase (CtPME) of family 8 carbohydrate esterase (CE8) from Clostridium thermocellum. | 45th National Seminar on Crystallography (NSC 45) July 9-12, 2017, IIT (BHU), Varanasi, India. | 2017 | 128 | 128 |

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| 95 | Shweta Singh and Arun Goyal | Strain improvement of Bacillus amyloliquefaciens SS35 by UV mutagenesis for enhanced carboxymethyl celluase activity for efficient biomass hydrolysis. | Bioenergy-Urja Utsav by Ministry of Petroleum and Natural Gas 2017, July 7-8, Pune, India. | 2017 | | |
| 96 | Priyanka Nath, Arun Dhillon and Arun Goyal | Enhancement of activity of recombinant endo-glucanase (CtGH5) from Clostridium thermocellum by site-directed mutagenesis. | Bioenergy-Urja Utsav by Ministry of Petroleum and Natural Gas 2017, July 7-8, Pune, India. | 2017 | | |
| 97 | Ashutosh Gupta, Vikky Rajulapati, Debasish Das and Arun Goyal | Bioethanol production involving saccharification by cocktail of recombinant clostridial enzymes using sugarcane leaves and kans grass as sustainable feed stocks from north-east India. | Bioenergy-Urja Utsav by Ministry of Petroleum and Natural Gas 2017, July 7-8, Pune, India. | 2017 | | |
| 98 | Sumitha Banu Jamaldheen, Kedar Sharma, Aruna Rani, Vijayanand S. Moholkar and Arun Goyal | Evaluation of pretreatment methods and recombinant enzyme hydrolysis of sorghum stalk for bioethanol production. | Bioenergy-Urja Utsav by Ministry of Petroleum and Natural Gas 2017, July 7-8, Pune, India. | 2017 | | |
| 99 | Riddhi Bannerjee Rachayeeta Deb and Shirisha Nagotu | Uptake and intracellular fate of nona-arginine cell penetrating peptide in yeast | 10 th Conference on Yeast Biology, JNU, New Delhi | 2018 | | |
| 100 | Nayan Moni Deori and Shirisha Nagotu | Characterizing the dual targeting and function of the peroxisomal protein Pex30 | 10th Conference on Yeast Biology, JNU, New Delhi | 2018 | | |
| 101 | Neha Arora, Siddhartha Sankar Ghosh | PEGylated Silver Nanoclusters Mediated Cytosolic Delivery of Tumor Suppressor Protein PTEN to Modulate in vitro Cellular Signalling | 5th Nano Today Conference, Hawaii ,USA | 2017 | | |
| 102 | Deepanjalee Dutta, Arun Chattopadhyay, Siddhartha Sankar Ghosh | Bimetallic Au–Ag Nanoclusters embedded Cationic BSA nanocarrier for Bioimaging and Suicide gene therapy of HeLa cancer cells | NanoBioteck'17 Trivandrum, India | 2017 | | |
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| 104 | Neha Arora, Siddhartha Sankar Ghosh | Understanding Therapeutic Potential of PEGylated Silver Nanoclusters Loaded Recombinant PTEN | 5th International Conference on Advanced Nanomaterial and Nanotechnology | 2017 | | |
| 105 | Sunil kumar Sailapu ,Deepanjalee Dutta, Arun Chattopadhyay, Siddhartha Sankar Ghosh | Smartphone based portable device for photodynamic therapy and colorimetric assays | North East Biostart, Guwahati Biotech Park | 2018 | | |
| 106 | Anitha T Simon Deepanjalee Dutta,Sunil kumar Sailapu, Arun Chattopadhyay, Siddhartha Sankar Ghosh | Smartphone based portable device for photodynamic therapy and colorimetric assays | Resarch Conclave, IIT Guwahati | 2018 | | |
| 107 | Swati Rajput, Dixcy Jaba Sheeba J M, Anil Mukund Limaye | Epigenetic Regulation of ADAMTS19 in breast cancer | Research Conclave, 2018, IIT Guwahati | 2018 | | |
| 108 | Dixcy Jaba Sheeba J M, Mohan C Manjegowda, Ajay Kumar, Anil Mukund Limaye | Role of cystatin A in breast cancer and its functional link with ERα | International Congress of Cell Biology held in Hyderabad, India | 2018 | 279 | 280 |
| 109 | Gaurav Bhatt | Workshop | Confocal Laser Scanning Microscopy and its applications | 2017 | | |
| 110 | Gaurav Bhatt | Workshop | Short Term Training Program on Analytical Instruments & Their Application (GCMS & HPLC) | 2017 | | |
| 111 | Gaurav Bhatt | Workshop | DDHP 2018,Tezpur University | 2018 | | |
| 112 | Uttariya pal | Workshop | Confocal Laser Scanning Microscopy and its applications | 2017 | | |
| 113 | Mohan C. Manjegowda, Uttariya Pal, Paridhi Singhal Gupta, Ajay Kumar, Dixcy Jaba Sheeba J M, Gaurav Bhatt and Anil M. Limaye | Transcriptome profile of breast cancer cells treated with GPER1-specific agonist G1 | 37th Indian Association of cancer research convention. | 2018 | | |
| 114 | Ajay kumar, Mohan C. Manjegowda, , , Dixcy Jaba Sheeba J M, Sachin Kumar and Anil M. Limaye* | 17β-estradiol negatively regulates PCDH8 expression in estrogen receptor positive breast cancer cells through action mediated by estrogen receptor α | Jawaharlal Nehru University, Delhi. | 2017 | | |

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| 115 | Mohan C. Manjegowda, Paridhi Singhal Gupta, DixcyJabaSheeba J M, Ajay Kumar, Uttariya Pal, and Anil M. Limaye | The synthetic ligand G1: an agonist for G-protein coupled estrogen receptor-1 or an inhibitor of mitosis? | International Congress of Cell Biology held in Hyderabad, India, on January 27th-31st | 2018 | 283 | 283 |
| 116 | Mohan C. Manjegowda, Paridhi Singhal Gupta, and Anil M. Limaye | Hypermethylation of the upstream CpG islands shore is a likely mechanism of GPER 1 silencing in breast cancer cells. | Gordon Research Conference, cancer, Genetics, epigenetics held at Banga, Italy. | 2017 | | |
| 117 | Mohan C. Manjegowda, Anil M. Limaye | Workshop | Intrnational conference and workshop on genomics analysis and technology, Guwahati university | 2018 | | |
| 118 | Mohd Faheem Khan and Sanjukta Patra | Immobilization of engineered thermostable *Bacillus subtilis* lipase on ZnO nanoparticles for application in detergent formulation | International Conference on Advanced Nanomaterial and Nanotechnology (ICANN-2017) | 2017 | 18 | 21 |
| 119 | Mohd Faheem Khan and Sanjukta Patra. | Protein engineering of *Bacillus subtilis* lipase to improve alkalistability and thermostability for detergent application | 5th Bioprocessing India.IIT Guwahati | 2017 | | |
| 120 | Mayur Mahindra Kedare, Mohd Faheem Khan and Sanjukta Patra. | Metagenomic approach for mining industrially relevant thermophilic enzymes. | 5th Bioprocessing India.IIT Guwahati | 2017 | | |
| 121 | Prithwi Chayan Chatterjee, Debasree Kundu and Sanjukta Patra | Multivariate optimization of process parameters for biomass and lipid production by Chlorella pyrenoidosa NCIM 2738 | 5th Bioprocessing India.IIT Guwahati | 2017 | | |
| 122 | Prithwi Chayan Chatterjee, Debasree Kundu, Sanjukta Patra | Investigation of combined effect of various process parameters on biomass and lipid productivity of Chlorella pyrenoidosa NCIM 2738 using response surface methodology | Research Conclave, IIT Guwahati, India | 2018 | | |
| 123 | Debasree Kundu, Mohd Faheem Khan, Sanjukta Patra | Econanotoxicity and environmental impact of engineered nanomaterials: navigating possible strategies for nano-bio-eco interactions | Research Conclave, IIT Guwahati, India | 2018 | | |

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| 124 | Mayur Mahindra Kedare, Mohd Faheem Khan, and Sanjukta Patra | Metagenomic approach for mining Industrially Relevant Thermophilic Enzymes | Research Conclave, IIT Guwahati, India | 2018 | | |
| 125 | Mohd Faheem Khan and Sanjukta Patra | A protein engineering platform to improve stability of proteins for industrial applications | Research Conclave, IIT Guwahati, India | 2018 | | |
| 126 | Poulomi Saha, Mohd Faheem Khan, Sanjukta Patra | Potential applications of Bacillus subtilis α-amylase immobilized ZnO-NP for desizing of fabrics in textile industry | Bioprocessing India (BPI-2017), IIT Guwahati | 2017 | | |
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| 130 | Bhaskar Kalita, Bhaskar Das, Sanjukta Patra | Macro fungi biodiversity and prospects for its sustainable cultivation in rural areas of North East India | Biodiversity and Biobanking: From Microbes to Man (Biodiverse 2018) | 2018 | | |
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| 132 | Bhaskar Kalita and Sanjukta Patra | Effective utilization of agricultural waste towards promotion of rural entrepreneurships: a critical study | Research Conclave 2018 | 2018 | | |
| 133 | Satakshi Hazra and Sanjukta Patra | Pharmacoproteomics of multitargeting in antimycobacterial drug-target discovery | 9$^{th}$ Annual Meeting of Proteomics Society, India (PSI), International Conference on Proteomics in Health and Disease, Institute of Life Sciences (ILS), Bhubaneswar | 2017 | | |

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| 134 | Surajbhan Sevda | Removal of nitrogenous pollutants and organic matter simultaneously from two different wastewaters using biocathode microbial fuel cell | Bioprocessing India 2017, IIT Guwahati | 2017 | | |
| 135 | Surajbhan Sevda | Synergy of bioelectrochemical system and anaerobic digestion for enhanced energy recovery and wastewater treatment | Red-Start challenge, Research Conclave, IIT Guwahati, India | 2018 | | |
| 136 | Boro H, Dey A, Kumar S, Kobayashi Y, Sahoo L. | Evaluation of cowpea genotypes for adaptation to aluminum toxicity in acid soil. | National symposium on pulses for nutritional security and Agricultural sustainability, Organized by ICAR-IIPR, Kanpur India | 2017 | 199 | 199 |
| 137 | Muthuvel J, Kalita A, Kumari S, Kumar S, Kalia V, Rajam MV, Sahoo L | Bt and RNAi mediated protection in cowpea to legume pod borer (*Maruca vitrata*) | National symposium on pulses for nutritional security and Agricultural sustainability, Organized by ICAR-IIPR, Kanpur India | 2017 | 143 | 143 |
| 138 | Srivastava R, Kalita A, Kumar S, Sahoo L | Manipulation of vacuolor sequestration of Na and salt responsive NAC transcription factor for salt-tolerance in mungbean | National symposium on pulses for nutritional security and Agricultural sustainability, Organized by ICAR-IIPR, Kanpur India | 2017 | 144 | 144 |
| 139 | Kumar S, Muthuvel J, Kalita A, Kalia V, Sahoo L | Transgenic cowpea plants expressing Cry1Ab toxin confers resistance to legume pod borer (*Maruca vitrata*) | South Asia Biosafety Conference | 2017 | | |
| 140 | Gargi Goswami | Process Engineering for Production of Microalgal Biomass with Higher Productivity | Bioprocessing India 2017 | 2017 | 41 | 42 |
| 141 | Bidhu Bhusan Makut, Debasish Das, Gargi Goswami | Development of a sustainable process for generation of microbial biomass as a feedstock for biofuel production | Bioprocessing India 2017 | 2017 | 153 | 153 |
| 142 | Ratan Kumar, Ankan Sinha, Parveez Ahamed, B.C. Dutta, Debasish Das, Gargi Goswami | Optimization of chemical flocculating agents for harvesting of *Chlorella* sp. FC2 IITG | Bioprocessing India 2017 | 2017 | 155 | 155 |
| 143 | Ankan Sinha, Ratan Kumar, Sagarika Banerjee, Gargi Goswami, B.C. Dutta, Debasish Das | Screening and isolation of potential CO2 tolerant microalgae form industrial waste water via CO2 selection pressure | Bioprocessing India 2017 | 2017 | 154 | 155 |

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| 144 | Rithima Warrier, Kiran Subramani, Debasish Das and Gargi Goswami | Construing the bottlenecks involved in Hydrothermal Liquefaction of microalgae | Bioprocessing India 2017 | 2017 | 155 | 156 |
| 1451 | Payel Sarkar, Gargi Goswami, Debasish Das | Development of a metabolically engineered *Zymomonas mobilis* for efficient utilization of pentose sugar | Bioprocessing India 2017 | 2017 | 178 | 179 |
| 146 | Mehak Kaushal, Saumya Ahlawat, Gargi Goswami, Debasish Das | *Clostridium sporogenes* a cell factory for biofuel production: Process strategies and system biology approach | Bioprocessing India 2017 | 2017 | 156 | 156 |
| 147 | Mayurketan Mukherjee, Anwesha Purkayastha, Saumya Ahlawat, Mehak Kaushal, Gargi Goswami, Debasish Das | Novel medium engineering strategy directed towards enhancing butanol production from *Clostridium acetobutylicum* ATCC 824 | Bioprocessing India 2017 | 2017 | 154 | 154 |
| 148 | T Anand , Ngiilmei S D, Tamuli R | The *NcZrg-17* gene of *Neurospora crassa* encodes a cation diffusion facilitator transporter required for vegetative development, tolerance to endoplasmic reticulum stress and cellulose degradation under low zinc conditions. | Research Conclave, IIT Guwahati, India, March 8-11. | 2018 | - | - |
| 149 | Das P and Tamuli R | Studies on the cellular roles of $Ca^{2+}$ ATPases TRM-9 and NCA-2 in *Neurospora crassa*. | Research Conclave, IIT Guwahati, India, March 8-11. | 2018 | - | - |
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| 151 | Marak K CN, and Tamuli R. | Calmodulin and calcium/calmodulin dependent kinases are important for normal growth and development in *Neurospora crassa*. | Research Conclave, IIT Guwahati, India, March 8-11. | 2018 | - | - |
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| 153 | Tamuli R, Gohain D, Roy A, Baruah D, Kumar A, Marak N K, Das P, Barman A, Deka R, Kumar R, Laxmi V. | Calcium singling genes are critical for growth, development, and circadian clock in *Neurospora crassa*. | 14th European Conference on Fungal Genetics (ECFG14) conference, February 25-28, Haifa, Israel. | 2018 | - | - |
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| 155 | Gohain D and Tamuli R. | The transcription factor CRZ-1 upregulates the expression of NCS-1 that closes MID-1 channel for calcium stress tolerance in *Neurospora crassa*. | National Conference on Fungal Biology: Recent Trends and Future Prospects and 44th Annual meeting of the Mycological Society of India (MSI), University of Jammu, Jammu, India, November 16-18. | 2017 | - | - |
| 156 | Kumar A and Tamuli R | Role of CNA-1 in stress responses and circadian rhythm in *Neurospora crassa*. | National Conference on Fungal Biology: Recent Trends and Future Prospects and 44th Annual meeting of the Mycological Society of India (MSI), University of Jammu, Jammu, India, November 16-18 | 2017 | - | - |
| 157 | Roy A and Tamuli R | Role of calcineurin B (CNB-1) RIP mutants in stress tolerance, circadian rhythm and probable interaction with calcium proton exchanger (CAX) regulating cell functions in *Neurospora crassa*. | National Conference on Fungal Biology: Recent Trends and Future Prospects and 44th Annual meeting of the Mycological Society of India (MSI), University of Jammu, Jammu, India, November 16-18 | 2017 | - | - |
| 158 | Marak K CN and Tamuli R | Calcium/calmodulin dependent kinases play a role in the regulation of normal period length in *Neurospora crassa* circadian clock. | National Conference on Fungal Biology: Recent Trends and Future Prospects and 44th Annual meeting of the Mycological Society of India (MSI), University of Jammu, Jammu, India, November 16-18 | 2017 | - | - |
| 159 | Baruah D and Tamuli R | Understanding the role of *plc-1*, *splA*$_2$ and *cpe-1* | National Conference on Fungal Biology: Recent Trends and | 2017 | - | - |

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| 160 | Das P and Tamuli R | The *trm-9*, a $Ca^{2+}$ ATPase is required for vegetative growth and thermotolerance in *Neurospora crassa*. | National Conference on Fungal Biology: Recent Trends and Future Prospects and 44th Annual meeting of the Mycological Society of India (MSI), University of Jammu, Jammu, India, November 16-18 | 2017 | - | - |
| 161 | Ashish A Prabhu and V.Venkata Dasu | Pentose pathway engineering for the recombinant human interferon gamma production in *Pichia pastoris* | 5th Annual conference on Recent Trends in Bio-processing for Healthcare, Energy and Environment (BPI-2017) | 2017 | | |
| 162 | Karthika B., Aruna Rani, Kedar Sharma and Arun Goyal | Structural and biochemical characterization of recombinant Heparinase II/III of family 12 polysaccharide lyase (PL12) from Pedobacter saltans. | 7th International Forum on Industrial Bioprocessing (IFIBiop 2017), May 21-24, Wuxi, China. | 2017 | | |
| 163 | Shabir Najmudin, Filipe Freire, Anil Verma, Pedro Bule, Victor D. Alves, Carlos M. G. A. Fontes and Arun Goyal | Conservation in the mechanism of glucuronoxylan hydrolysis revealed by the structure of glucuronoxylan xylanohydrolase (CtXyn30A) from Clostridium thermocellum. | 6th National Meeting of Portuguese Synchrotron Radiation Users, May 19, 2017, National Laboratory of Energy and Geology, Alfragide, Portugal. | 2017 | | |
| 164 | Shabir Najmudin, Shadab Ahmed, Kedar Sharma, Pedro Bule, Victor D. Alves, Carlos M.G.A. Fontes and Arun Goyal | Molecular determinants of substrate specificity revealed by the structure of Clostridium thermocellum family 43_16 arabinofuranosidase. | 6th National Meeting of Portuguese Synchrotron Radiation Users, May 19, 2017, National Laboratory of Energy and Geology, Alfragide, Portugal. | 2017 | | |
| 165 | Arun Dhillon and Arun Goyal | Recombinant rhamnogalacturonanan lyase (CtRGLf) from Clostridium thermocellum and its use in textile processing. | 12th Carbohydrate Bioengineering Meeting, April 23-26, 2017, Vienna, Austria. | 2017 | 170 | 170 |
| 166 | Vikky Rajulapati and Arun Goyal | A new family member of Carbohydrate Esterase 8, pectin | 12th Carbohydrate Bioengineering Meeting, April 23-26, 2017, Vienna, Austria. | 2017 | 190 | 190 |

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| 167 | Aruna Rani, Kedar Sharma and Arun Goyal | Insights into the structural characteristics of chondroitin AC lyase PsPL8A from Pedobacter saltans. | 12th Carbohydrate Bioengineering Meeting, April 23-26, 2017, Vienna, Austria. | 2017 | 158 | 158 |
| 168 | Rwivoo Baruah, Barsha Deka and Arun Goyal | Synthesis of in situ prebiotic isomalto-oligosaccharides in mango and pineapple juices using dextransucrase from Weissella cibaria RBA12. | 12th Carbohydrate Bioengineering Meeting, April 23-26, 2017, Vienna, Austria. | 2017 | 125 | 125 |

**<u>Book, Book Chapter, etc.</u> (PERIOD: 1 APRIL 2017 – 31 MARCH 2018)**

**Total No. of Books Published 5**

**Total No. of Book Chapters Published: 57**

**Format for submission of Book**

| Sl. No. | Name of Author/s | Name of Book | Publisher | Volume and Issue No. (If any) | Total Page No. | ISBN | Year of Publication |
|---|---|---|---|---|---|---|---|
| 1 | Pawan Kumar Maurya and Pranjal Chandra | Oxidative stress: Diagnostic methods and application in medical science | Springer Singapore | -- | 168 | 978-981-10-4710-7 | 2017 |
| 2 | Ajaikumar B Kunnumakkara, Ganesan Padmavathi, Nand Kishor Roy | Fusion Genes and Cancer | World Scientific | - | 432 | 978-981-3200-93-7 | 2017 |
| 3 | Ajaikumar B Kunnumakkara Devivasha Bordoloi, JavadiMonisha | Cancer Cell Chemoresistance and Chemosensitization | World Scientific | - | 684 | 978-981-3208-56-8 | 2018 |
| 4 | Pranjal Chandra, Yen Nee Tan, Surinder P Singh | Next Generation Point-of-care Biomedical Sensors Technologies for Cancer Diagnosis | Springer Singapore | NA | 396 | 978-981-10-4726-8 | 2017 |
| 5 | Pradeep Kumar, Jayanta Kumar Patra, | Advances in Microbial Biotechnology: | CRC Press, USA | NA | 650 | 9781351248914 | 2018 |

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| | Pranjal Chandra | Current Trends and Future Prospects | | | | | |

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| Sl. No. | Name of Author/s | Name of Paper | Name of Book | Publisher | Volume and Issue No. (If any) | Page No. | ISBN | Year and Date of Publication |
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| 1 | Bordoloi D, Sailo BL, Manteghi N, Padmavathi G and Kunnumakkara AB | Introduction and Basic Concepts of Cancer | Cancer cell chemoresistance and chemosensitization | World Scientific | - | 1-14 | 978-981-3208-56-8 | 2018 |
| 2 | Monisha J, Jaiswal A, Banik K, Harsha C, Singh AK, Bordoloi D and Kunnumakkara AB | Cancer Cell Chemoresistance: A Prime Obstacle in Cancer Therapy | Cancer cell chemoresistance and chemosensitization | World Scientific | - | 15-50 | 978-981-3208-56-8 | 2018 |
| 3 | Roy NK, Sharma A, Singh AK, Bordoloi D, Sailo BL, Monisha J and Kunnumakkara AB | Bladder Cancer: Chemoresistance and Chemosensitization, | Cancer cell chemoresistance and chemosensitization | World Scientific | - | 51-80 | 978-981-3208-56-8 | 2018 |
| 4 | Padmavathi G, BordoloiD,Banik K, Monisha J, Singh AK and Kunnumakkara AB | Mechanism of Chemoresistance in Bone Cancer and Different Chemosensitization Approaches | Cancer cell chemoresistance and chemosensitization | World Scientific | - | 81-106 | 978-981-3208-56-8 | 2018 |
| 5 | Khwairakpam AD, Monisha J, Banik K, Harsha C, Sharma A, Bordoloi D and Kunnumakkara AB | Chemoresistance in Brain Cancer and Different Chemosensitization Approaches | Cancer cell chemoresistance and chemosensitization | World Scientific | - | 107-128 | 978-981-3208-56-8 | 2018 |
| 6 | Banik K, Sailo BL, Thakur KK, Jaiswal A, Monisha J, Bordoloi D and Kunnumakkara AB | Potential of Different Chemosensitizers to Overcome Chemoresistance in Cervical Cancer | Cancer cell chemoresistance and chemosensitization | World Scientific | - | 163-180 | 978-981-3208-56-8 | 2018 |
| 7 | Singh AK, Monisha J, Banik K, Harsha C, Khwairakpam AD, Bordoloi D and Kunnumakkara AB | Cancer Cell Chemoresistance and Chemosensitization in Endometrial Cancer | Cancer cell chemoresistance and chemosensitization | World Scientific | - | 227-240 | 978-981-3208-56-8 | 2018 |
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| 10 | Singh AK, Roy NK, Anip A, Banik K, Monisha J, Bordoloi D and Kunnumakkara AB | Different Methods to Inhibit Chemosresistance in Hepatocellular Carcinoma | Cancer cell chemoresistance and chemosensitization | World Scientific | - | 373-398 | 978-981-3208-56-8 | 2018 |
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| 14 | Sailo BL, Monisha J, Jaiswal A, Prakash J, Roy NK, Thakur KK, Banik K, Bordoloi D and Kunnumakkara AB | Molecular Alterations Involved in Pancreatic Cancer Chemoresistance and Chemosensitization Strategies | Cancer cell chemoresistance and chemosensitization | World Scientific | - | 557-582 | 978-981-3208-56-8 | 2018 |
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| 16 | Sailo BL, Bordoloi D, Banik K, Khwairakpam AD, Roy NK, Prakash J and Kunnumakkara AB | Therapeutic Strategies for Chemosensitization of Renal Cancer | Cancer cell chemoresistance and chemosensitization | World Scientific | - | . 615-640 | 978-981-3208-56-8 | 2018 |
| 17 | Padmavathi G, Bordoloi D, Banik K,Kunnumakkara AB | Cancer biomarkers: Important tools for cancer diagnosis and prognosis | Next Generation Point-of-care Biomedical Sensors Technologies for Cancer Diagnosis | Springer Singapore. | - | 1-29 | - | 30 December 2017 |
| 18 | Gopi S, Jacob J, Varma K, Amalraj A, Sreeraj TR, | Natural sports supplement formulation for | Sport Sciences for Health | - | 1 | 183-194 | - | 2017 |

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| | Kunnumakkara AB, Divya C | physical endurance: a randomized, double-blind, placebo-controlled study | | | | | | |
| 19 | Roy NK, Bordoloi D, Monisha J, Anip A, Padmavathi G and Kunnumakkara AB | Cancer- an overview and molecular alterations in cancer | Fusion genes and cancer | World Scientific | - | 1-15 | 978-981-3200-93-7 | 2017 |
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| 21 | Roy NK, Padmavathi G, Bordoloi D and Kunnumakkara AB | Techniques available to identify novel fusion genes and to detect known fusion genes | Fusion genes and cancer | World Scientific | - | 59-79 | 978-981-3200-93-7 | 2017 |
| 22 | Padmavathi G, Thakur KK, Anip A, Bordoloi D and Kunnumakkara AB | The receptor tyrosine kinase ALK; its fusion partners and their implication in various cancers | Fusion genes and cancer | World Scientific | - | 81-109 | 978-981-3200-93-7 | 2017 |
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| 24 | Padmavathi G, Bordoloi D, Banik K and Kunnumakkara AB | BRD4-NUT fusion oncoprotein and its significance in the initiation and progression of NUT midline carcinoma (NMC) | Fusion genes and cancer | World Scientific | - | 129-135 | 978-981-3200-93-7 | 2017 |
| 25 | Padmavathi G, Harsha C, Bordoloi D, Thakur KK and Kunnumakkara AB | Importance of CBFB-MYH11- a chimeric transcriptional regulator in leukemia | Fusion genes and cancer | World Scientific | - | 137-146 | 978-981-3200-93-7 | 2017 |
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| 27 | Padmavathi G, Bordoloi D, Anip A, Thakur KK and Kunnumakkara AB | Translocation of FET family members with various partner genes and their role in cancer development | Fusion genes and cancer | World Scientific | - | 163-188 | 978-981-3200-93-7 | 2017 |

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| 28 | Padmavathi G, Monisha J, Harsha C and Kunnumakkara AB | Translocations of FGF and FGFR proteins and their effect in cancer | Fusion genes and cancer | World Scientific | - | 189-199 | 978-981-3200-93-7 | 2017 |
| 29 | Padmavathi G, Banik K, Thakur KK and Kunnumakkara AB | IG/MYC and its implication in cancer | Fusion genes and cancer | World Scientific | - | 201-208 | 978-981-3200-93-7 | 2017 |
| 30 | Padmavathi G, Banik K, Bordoloi D, Harsha C and Kunnumakkara AB | Chimeric RAF kinases in the development of cancer | Fusion genes and cancer | World Scientific | - | 209-220 | 978-981-3200-93-7 | 2017 |
| 31 | Padmavathi G, Harsha C, Bordoloi D, Banik K and Kunnumakkara AB | Mucoepidermoid carcinoma (MEC) and associated MAML2 fusion genes | Fusion genes and cancer | World Scientific | - | 221-230 | 978-981-3200-93-7 | 2017 |
| 32 | Padmavathi G, Harsha C and Kunnumakkara AB | Mixed Lineage Leukemia/AF9 fusion and associated leukemia | Fusion genes and cancer | World Scientific | - | 231-243 | 978-981-3200-93-7 | 2017 |
| 33 | Padmavathi G, Thakur KK and Kunnumakkara AB | MYB-NFIB fusion gene- hallmark of adenoid cystic carcinoma (ACC) | Fusion genes and cancer | World Scientific | - | 245-251 | 978-981-3200-93-7 | 2017 |
| 34 | Padmavathi G, Thakur KK and Kunnumakkara AB | Translocations involving PAX family genes and their effect in cancer | Fusion genes and cancer | World Scientific | - | 253-270 | 978-981-3200-93-7 | 2017 |
| 35 | Padmavathi G, Monisha J, Anip A, Thakur KK and Kunnumakkara AB | Retinoic acid receptor alpha (RAR?) fusion genes in leukemia | Fusion genes and cancer | World Scientific | - | 271-285 | 978-981-3200-93-7 | 2017 |
| 3 | Padmavathi G, Bordoloi D, Anip A, Harsha C and Kunnumakkara AB | RET/PTC translocations and thyroid malignancies | Fusion genes and cancer | World Scientific | - | 287-296 | 978-981-3200-93-7 | 2017 |
| 37 | Padmavathi G, Monisha J, Banik K, Harsha C, Bordoloi D and Kunnumakkara AB | RUNX1 or AML1 fusion genes in leukemia and other cancers | Fusion genes and cancer | World Scientific | - | 297-313 | 978-981-3200-93-7 | 2017 |
| 38 | Padmavathi G, Bordoloi D, Monisha J, Roy NK, Harsha C and Kunnumakkara AB | Other fusion genes responsible for the development of solid and hematological tumors | Fusion genes and cancer | World Scientific | - | 315-348 | 978-981-3200-93-7 | 2017 |
| 39 | Roy NK, Bordoloi D, Padmavathi G and Kunnumakkara AB | Targeting fusion genes for cancer therapy | Fusion genes and cancer | World Scientific | - | 349-371 | 978-981-3200-93-7 | 2017 |
| 40 | Abshar Hasan, Lalit M. Pandey | Self-assembled monolayers in biomaterials | Nanobiomaterials Nanostructured Materials for | Elsevier | 1st Edition | 137–178 | eBook ISBN: | 2017 |

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| | | | Biomedical Applications | | | | 9780081007259 Hardcover ISBN: 9780081007167 | |
| 41 | G. Chhabra, N. Chandra, R. Swaminathan | Osmolytes: Key players in regulating protein aggregation | Cellular Osmolytes: From Chaperoning Protein Folding to Clinical Perspectives | Springer Singapore | | 97-119 | 978-981-10-3707-8 | 2017 |
| 42 | Surajbhan Sevda, Pranab JyotiSarma, Kaustubha Mohanty, T. R. Sreekrishnan and Deepak Pant | Microbial Fuel Cell Technology for bioelectricity Generation from Wastewaters | Waste to wealth | Springer - | | 237-258 | 978-981-10-7431-8 | 2017 |
| 43 | Kumar S, Dey A, Yuan YY, Sahoo L | RNA Interference: for improving trait and disease management in plants | "Biofuels: Greenhouse gas mitigation and global warming-Next generation biofuels and role of Biotechnology" | Springer | In press | | | |
| 44 | Ojha, S., Singh, D., Sett, A., Chetia, H., Kabiraj, D. & Bora, U | Nanotechnology in Crop Protection | Nanomaterials in Plants, Algae and Micro-organism: Concepts and Controversies | Academic Press | Vol 1 | 345-390 | 0128116463, 9780128116463 | 2018 |
| 45 | Nandana Bhardwaj, Dimple Chouhan and Biman B. Mandal | 3D functional scaffolds for skin tissue engineering | Functional Three-Dimensional Tissue Engineering Scaffolds: Materials, Technologies and Applications | Woodhead Publisher | - | | 978-0-08-100979-6 | October, 2017 |
| 46 | Nandana Bhardwaj, Dimple Chouhan, Biman B Mandal | 3D functional scaffolds for skin tissue engineering | Functional 3D tissue engineering scaffolds | Woodhead Publisher (Elsevier), USA | Edited by Y. Deng and J. Kuiper. | 345-365 | 9780081009796 | 2018 |
| 47 | P. Bhattacharjee, P Gupta, MJ Christakiran, SK Nandi, Biman B Mandal | Silk-based matrices for bone tissue engineering applications | Nanostructures for the engineering of cells, tissues, and organs | Elsevier, USA | Editors: Alexandru Grumezescu | 439-472 | 9780128136652 | 2018 |
| 48 | Yogendra Pratap Singh, Shreya Mehrotra, Jadi Praveen Kumar, Bibhas Kumar Bhunia, Nandana Bhardwaj, Biman B. Mandal | Tissue Engineering Therapies for Ocular Regeneration. | Biomaterials & Nanotechnology for Tissue Engineering" | CRC Press (Taylor and Francis Group) | Edited by S. Swaminathan, K. Uma Maheswari and S. Anuradha. | 173-210 | 978-1-4987-4373-0 | 2017 |

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|---|---|---|---|---|---|---|---|---|
| 49 | Shweta Singh, Arabinda Ghosh and Arun Goyal | Manno-oligosaccharides as prebiotic- valued products from agro-waste. | Biosynthetic Technology and Environmental Challenges: Energy, Environment, and Sustainability. | Springer Book Series by Springer Nature | | 205-221 | 978-981-10-7433-2 | 2017 |
| 50 | Ritesh S. Malani, Sohan Singh, Arun Goyal and Vijayanand S. Moholkar | Ultrasound-assisted biodiesel production using KI-impregnated zinc oxide (ZnO) as heterogeneous catalyst: a mechanistic approach | Recent Advances in Bioenergy Research | Springer | | 67-81 | | 2018 |
| 51 | Kuldeep Mahato, Suveen Kumar, Ananya Srivastava, Pawan K Maurya, Renu Singh, Pranjal Chandra | Electrochemical Immunosensors: Fundamentals and Applications in Clinical Diagnostics | Handbook of Immunoassay Technologies | Academic Press | NA | 359-414 | 9780128117941 | 2018 |
| 52 | Kuldeep Mahato, Anupriya Baranwal, Ananya Srivastava, Pawan Kumar Maurya, Pranjal Chandra | Smart Materials for Biosensing Applications | Techno-Societal 2016, International Conference on Advanced Technologies for Societal Applications | Springer, Cham | NA | 421-431 | 978-3-319-53556-2 | 2018 |
| 53 | Anupriya Baranwal, Ananya Srivastava, Pranjal Chandra | A Systematic Study on Phytosynthesized Silver Nanoparticles and Their Antimicrobial Mode of Action | Advances in Microbial Biotechnology Current Trends and Future Prospects | CRC Press, USA | NA | NA | 9781351248914 | 2018 |
| 54 | N. N. Deshavath, S. K. Sahoo , M. M. Panda, S. Mahanta, D. S. N. Goutham, V. V. Goud, V. V. Dasu, Annapurna Jetty | The Cost Effective Stirred Tank Reactor for Cellulase Production from Alkaline Pretreated Agriculture Waste Biomass/Utilization and Management of Bioresources | N. N. Deshavath, S. K. Sahoo , M. M. Panda, S. Mahanta, D. S. N. Goutham, V. V. Goud, V. V. Dasu, Annapurna jetty | Springer | | Accepted | 978-981-10-5349-8 | |
| 55 | Narendra Naik Deshavath, Bijayeeni Singh Deo, Jyothika Boddu, Komali vykuntam, Vaibhav. V Goud, V. Venkata Dasu | Dilute acid pretreatment efficiency on various solid loadings and effect of different neutralizing agents on xylulosic ethanol production | Narendra Naik Deshavath, Bijayeeni Singh Deo, Jyothika Boddu, Komali vykuntam, Vaibhav. V Goud, V. Venkata Dasu | Springer | | 433-453 | | |

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| 56 | Ashish A. Prabhu,Sushma Chityala, Dharanidaran Jayachandran,Narendra Naik,Veeranki Venkata Dasu | Rhizoremediation of Environmental Contaminants Using Microbial Communities/Plant-Microbe Interactions in Agro-Ecological Perspectives | Ashish A. Prabhu,Sushma Chityala, Dharanidaran Jayachandran,Narendra Naik,Veeranki Venkata Dasu | Elsiveier | | 181-200 | 978-981-10-6593-4 | |
| 57 | K Hegde, A Prabhu, SJ Sarma, SK Brar, V Venkata Dasu | Potential Applications of Renewable Itaconic Acid for the Synthesis of 3-Methyltetrahydrofuran | K Hegde, A Prabhu, SJ Sarma, SK Brar, V Venkata Dasu | Springer | | 521-542 | 978-981-10-6593-4 | 2017 |

**10. Conferences/Workshops/Symposia Attended: International, National**

| Name of Faculty | Name of Conf./Workshop | Place | Date | International/National |
|---|---|---|---|---|
| Prof. L Rangan | National conference on Role of Women in Science and Technology | New Delhi | 8-9 March 2018 | National |
| Prof. L Rangan | 87 Annual Session of NASI and Symposium on Basic Research - Its Role in National Development | Pune | 8-10 Dec 2017 | National |
| Prof L Rangan | Sensitization workshop on "Technological Empowerment of Women" | IIT Guwahati | 3-4 Nov 2017 | National |
| Dr. Shankar Prasad Kanaujia | National Seminar on Crystallography (NSC-45) | IIT (BHU) Varanasi, India | July 09-12, 2017 | National |
| Prof. Vikash Kumar Dubey | International Conference on Advances in Biotechnoogy and Biotherapeutics(ICABBS-2017) | Sathyabama University Chennai | 08th-10th March, 2017 | International |
| Prof. Vikash Kumar Dubey | Recent Advancements in Environmental Research (RAER, 2017) | IIT Guwahati Guwahati | 5th June 2017 | National |
| Prof. Vikash Kumar Dubey | 1st International Conference on Biotechnology & Biological Sciences Biospectrum 2017 | University of Engineering and Management Kolkata Kolkata | 25th-26th August 2017 | International |
| Prof. Vikash Kumar Dubey | 1st International Conference on Biotechnology & Biological Sciences Biospectrum 2017 | University of Engineering and Management Kolkata | 25th-26th August, 2017 | International |

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| Prof. Vikash Kumar Dubey | Emerging trend in Biotechnology for waste conversion (ETBWC 2017) | NEERI Nagpur, Maharashtra, India. | 08th-10th October, 2017 | International |
| Prof. Vikash Kumar Dubey | Annual Conference of Association of Microbiologists of India (AMI-2017) & | Dr. Bhimrao Ambedkar University ,Lucknow | 16th -19th Nov 2017 | International |
| Prof. Vikash Kumar Dubey | Emerging discoveries in Health and Agriculatural Science | JNU, New Delhi | 16th t0 19th November 2017 | National |
| Dr. Manish Kumar | Workshop on Laboratory Capacity Building for Leptospirosis | ICAR-NIVEDI, Bengaluru JNU, New Delhi | 14.09.17 | National |
| Dr. Manish Kumar | Opportunities and Challenges of Translational Research in the Frontier Areas of Animal Biotechnology, OUAT National seminar, Bhubaneswar. | OUAT, Bhubaneswar | 22-23rd Sept 2017 | National |
| Dr. Kusum K. Singh | 9th RNA Group Meeting | Varanasi | 26.10.17-28.10.17 | National |
| Dr. B. Anand | Young Investigators' Meeting (YIM) 2018 | Thiruvanthapuram | 5-9 March 2018 | National |
| Dr. B. Anand | Inaugural symposium on Electron cryo-microscopy in life sciences | NCBS-inStem, Bengaluru | 24-25 Jnaurary 2018 | National |
| Prof. Rajaram Swaminathan | Biophysical Society 62nd Annual Meeting | San Francisco, USA | 17-21 Feb 2018 | International |
| Dr. Biman B Mandal | Asian Biomaterials Congress (ABMC) | Trivandrum | October 26, 2017 | International |
| Dr. Biman B Mandal | 2nd NanoBioteck International Conference, | Trivandrum | December 08, 2017 | International |
| Dr. Biman B Mandal | RBAT IV, International Conference, Dept. of Biochemistry | University of Kerala, | Jan 24, 2018 | International |
| Dr. Biman B Mandal | 4th BSSE Annual Symposium | IISC Bangalore | Jan 25, 2018 | National |
| Dr. Biman B Mandal | Annual conference, Indian Society for Dental Research (ISDR), | AIIMS, Delhi | October 02, 2017 | National |
| Dr. Biman B Mandal | CME on Arthritis, Joint disorders and Tissue Engineering | Department of Orthopedics NEIGRIHMS | Feb 02, 2018. | National |
| Dr. Anil M. Limaye | International Symposium on Emerging Areas in Biosciences and Biomedical Technologies (eBBT 2018) | IIT Indore | Jan 5-6, 2018. | National |
| Dr. Anil M. Limaye | World Cancer Congress Theme: Cancer in a new way: innovation, prevention, diagnosis and cure | Raytheon Healthcare | 19th to 22nd Sept, 2017 | National |
| Dr. Surajbhan Sevda | Bioprocessing for energy and carbon from agro residues (BECAR) | IIT Mandi | 23rd Jan 2018 | National |
| Prof. Lingaraj Sahoo | Convention on Biological diversity (CBD) and organization for Economic | DBT-AAU Center Jorhat, Assam | Jorhat Assam | Feb 2018 |

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| | Cooperation and development (OCED) guidelines | | | |
| Prof. Lingaraj Sahoo | Management of yellow mosaic disease in cowpea through RNA interference (7th DSI-Symposium of the DNA Society of India) | IASST | Guwahati | 17 Nov 2017 |
| Prof. Lingaraj Sahoo | New Age Agriculture - Learning from Nature | Gifu Univesrity | Japan | 18 Dec 2017 |
| Prof. Lingaraj Sahoo | Improvement of Grain Legume Production: from genes to the field | Osaka Prefectural University | Osaka, Japan | 20 Dec 2017 |
| Prof. Lingaraj Sahoo | Development of minor grain legumes for sustainable production and functional food: bridging science and social need | IIT Guwahati Indo-Japan Bilateral Symposium on Future Perspective of Bioresource Utilization in North-Eastern Region (IJBS 17) ~ Guwahati, India | Guwahati | 01-04 Feb, 2018 |

**11. Invited Lectures of Faculty: In India, Abroad (Please do not repeat entries from Sl. No. 10)**

| Name of Faculty | Name of Lecture | Name of Inst./Org. | Place | Date |
|---|---|---|---|---|
| Dr. Ajaikumar B. Kunnumakkara | Role of Solute Carrier Proteins in the Development of Oral Squamous Cell Carcinoma | Guru Nanak Dev University | Amritsar, India | 22nd March, 2018 |
| Dr. Ajaikumar B. Kunnumakkara | Role of Different Isoforms of Akt kinase Oral Squamous Cell Carcinoma | Gujarat Cancer Research Institute | Ahmedabad, India | 16-17th March, 2018 |
| Dr. Ajaikumar B. Kunnumakkara | Role of LCN2 in the Development of Oral Squamous Cell Carcinoma | Trivandrum Medical College | Kerala, India. | 9-10th March, 2018 |
| Dr. Ajaikumar B. Kunnumakkara | Fusion genes: Highly Specific Biomarkers for Cancer Diagnosis and Therapy | Tripura University | Agarthala, India | 27th February 2018. |
| Dr. Ajaikumar B. Kunnumakkara | Different Isoforms of Akt and its Role in Oral Cancer | Indian Institute of Toxicological Research | Lucknow, India. | 21st February 2018 |
| Dr. Ajaikumar B. Kunnumakkara | Role of NGAL in the Development of Oral Squamous Cell Carcinoma | TBBR, Banaras Hindu University, | Varanasi, India. | 15th February 2018 |
| Dr. Ajaikumar B. Kunnumakkara | Role of Different Isoforms of Akt kinasein the | 7th International Conference on | Chennai, India | 10th February, 2018 |

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| | Development of Oral Squamous Cell Carcinoma | Translational Cancer Research, | | |
| Dr. Ajaikumar B. Kunnumakkara | Curcumin: a potential chemosensitizing agent for cancer cells | North East Cancer Hospital and Research Institute, Guwahati, | Assam, India. | 2nd December 2017 |
| Dr. Ajaikumar B. Kunnumakkara | Novel Approaches in the Development of Drugs for Cancer Treatment | The City of Scientific Research and Technological | Alexandria, Egypt | 11th July 2017 |
| Dr. Ajaikumar B. Kunnumakkara | Potential of Nutraceuticals in the treatment of cancer | European Egyptian Pharmaceutical Ind. Co. (EEPI) | Egypt | 10th July 2017 |
| Dr. Ajaikumar B. Kunnumakkara | Nutraceuticals in the Prevention and Treatment of Cancer | Mansoura University | Egypt | 5th July 2017 |
| Dr. Ajaikumar B. Kunnumakkara | Recent developments in the molecular diagnosis of cancer and personalized cancer medicine | St; Joseph's College | Thrissur, Kerala, India | 22nd July 2017 |
| Dr. P Satpati | Conference: Breaking Barriers through Bioinformatics & Computational Biology | IIT Delhi | Delhi | July 2017 |
| Kannan Pakshirajan | Bioprocessing for waste fed biorefineries | SASTRA | Thanjavur, Tamil Nadu | 11-16, December2017 |
| Prof. Kannan Pakshirajan | Novel sulfidogenic bioreactors for metallic wastewater treatment | IIT Guwhati | Guwahati, Assam | 9-11, December 2017 |
| Prof. Kannan Pakshirajan | Chitosan production from Penicillium citrinum biomass for value addition and resource recovery from Industrial wastewater | Challenges in Environmental Science and Engineering, CESE-2017 | Kunming, China | 11 – 15, November 2017 |
| Prof.Kannan Pakshirajan | Bioprocessing strategies for production of biofuels and value addition of waste water and waste sludge | Third winter school, Gifu University | Gifu, Japan | 19-21, December 2017 |
| Dr. Ranjan Tamuli | Molecular tools for genomics and proteomics research in fungi | College of Veterinary Science, Assam Agricultural University | Khanapara, Guwahati-78 10 22 | 21-11-2017 |
| Dr. Lalit Pandey | Self Assembled Monolayers in biomaterials | North East Hill University | Shillong | 22.11.2017 |

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| Dr. Navin Gupta | Biclustered Independent Component Analysis (B-ICA) for Complex Biomarker and Subtype Identification | Invited Session Talk, Annual Meet of Indian Academy of Neuroscience 2017 | Cuttack | Oct 2017 |
| Prof. Rakhi Chaturvedi | Cellular Totipotency and Bioaccumulation Capabilities of Plant Cells using Plant Tissue Culture Techniques | 2nd PAN IIT BIOTECH MEET on Synthetic Biology and Cardiovascular Diseases, The International Centre Goa, Goa. | The International Centre Goa, Goa. | October 5-7, 2017 |
| Prof. Rakhi Chaturvedi | Optimized micropropagation protocol to establish high-yielding true-to-type plantations of elite gentypes of *Tinospora cordifolia* for consistent production of therapeutic compounds | International Plant Propagators society (IPPS) Wilsonville, Oregon, US. | Wilsonville, Oregon, US. | October 17-20, 2017 |
| Prof. L Rangan | Women Leaders in the New Era of Science and Technology | NASI | IIT Guwahati | 3 March 2017 |
| Prof. Rakhi Chaturvedi | In Vitro anther cultures of *Camellia assamica* (Masters) for haploid plant production and possibilities of accumulation of Catechins, Caffeine and Theophylline in them | World Congress on In vitro Biology | North Carolina Biotechnology Centre, Raleigh, North Carolina, USA | June 10 – 14, 2017 |
| Prof. Rakhi Chaturvedi | *In vitro* anther culture and haploid plant production in *Camellia* species to generate homozygous plants with the possibilities of accumulation of bioactive metabolites. | Indo-Japan Bilateral Symposium, IIT Guwahati | Guwahati, Assam, India | Feb 1 – 4, 2018 |
| Prof. Kannan Pakshirajan | Bioprocessing of biomass gasification wastes for production of biofuels and value added products | Adhiyamaan College of Engineering, Chennai, Tamil Nadu | Chennai, Tamil Nadu | March 6-7, 2018 |
| Prof. Vikash Kumar Dubey | Plenary lecture during Recent Trends in Structural Bio informatics and Computer Aided Drug Design" [SBCADD'2018] | Alagappa University | Karaikudi | 21-Feb 2018 |

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| Prof. Utpal Bora | Biotechnology for a sustainable future | Bajali College | Pathshala | March 06, 2018 |
| Prof. Utpal Bora | Science and Technology for a sustainable future | Guwahati University Model School | Guwahati | February 28, 2018 |
| Prof. Utpal Bora | Science and Technology for a sustainable future: Priorities for North East India | College of Veterinery Sciences, AAU | Khanapara | February 28, 2018 |
| Prof. Utpal Bora | Diversity of insect mitochondrial genomes | CMERTI, Lahdoigarh | Jorhat | March 12-13, 2018 |
| Dr. B. Anand | CRISPR-Cas System: From Genome Defence to Tinkering Genome | Rajiv Gandhi Centre for Biotechnology | Thiruvanathanpuram | 9 March 2018 |
| Dr. B. Anand | Towards Mapping the Assembly Landscape of Ribosome | Workshop cum Training Program on Ribosome and Translation Techniques, Tezpur University | Tezpur | 25 November 2017 |
| Dr. B. Anand | CRISPR-Cas System: From Genome Defence to Tinkering Genome | 7th Symposium of the DNA Society of DNA, Institute of Advanced Study in Science and Technology | Guwahati | 17 November 2017 |
| Dr. B. Anand | Molecular Metamorphosis: Emergence of Specificity in a Promiscuous Nuclease during CRISPR Interference | 9th RNA RNA group Meet, Banaras Hindu University | Varanasi | 26 October 2017 |
| Prof. Rajaram Swaminathan | Transforming protein sequence and composition into numbers: A BIG DATA analysis tool for proteomes | 19th IUPAB Congress and 11th EBSA Congress | Edinburgh, United Kingdom | 18 July 2017 |
| Dr. Lalit Pandey | Self-Assembled Monolayers In Biomaterials | North East Hill University | Shillong | 22 November 2017 |
| Dr. Lalit Pandey | Surface Modification/ Engineering In Biomedical Engineering | North East Hill University | Shillong | 15-16 March 2018 |
| Dr. Biman B Mandal | Bioengineered Human Tissues | Sree Chitra Tirunal Institute for Medical Sciences and Technology | Trivandrum | October 25, 2017 |

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| Dr. Biman B Mandal | RBAT IV, International Conference, Dept. of Biochemistry | University of Kerala, | Jan 24, 2018 | International |
| Dr. Biman B Mandal | 4th BSSE Annual Symposium | IISC Bangalore | Jan 25, 2018 | National |
| Dr. Biman B Mandal | CME on Arthritis, Joint disorders and Tissue Engineering | Department of Orthopedics NEIGRIHMS | Feb 02, 2018. | National |
| Prof. Pranab Goswami | Biofuel cell | NIT Raipur | Raipur | 22 January 2018. |
| Prof. Pranab Goswami | Biofuel cell in a national conference on Non-Conventional Energy: Harvesting Technology and Its Challenges" (NEQIP). | Assam Engineering College | Guwahati | 10 November, 2017 |
| Prof. Pranab Goswami | Biofuel cell: An Emerging Energy Technology in the Interface of Material-, Bio-, and Chemical-sciences in refresher course “Nano Science & Nano Technology” | UGC Human Resource Development Center, Gauhati University. | Guwahati. | 22nd March – 11th April, 2017 at |
| Prof. Pranab Goswami | Biotechnology: Recent advances and future prospects | University of Science & Technology. | Ribhoi, Baridua, Meghalaya | 6th Sept.2017 |
| Prof. Pranab Goswami | Advances in biosensor research | Department of food engineering and technology, Tezpur University | Tezpur | 19th March 2018 |
| Prof. Pranab Goswami | Frontier in biosensor research | Department of Biuochemistry, NEHU | Shillong | 27th March |
| Prof. Arun Goyal | Recombinant chondroitin AC lyase (PsPL8A) from *Pedobacter saltans* and its applications in therapeutics and functional foods. | 7th International Forum on Industrial Bioprocessing (IFIBiop 2017) | Wuxi, China. | May 21-24, 2017 |
| Prof. Arun Goyal | Therapeutic and functional food aaplications of chondroitin AC lyase (PsPL8A) from *Pedobacter saltans*. | Department of Biochemistry, Panjab University | Chandigarh, India. | July 21, 2017 |
| Prof. Arun Goyal | Emerging Trends in Protein Structures under Refresher Course entitled “Emerging Trends in Science & Technology. | UGC-Human Resource Development Centre, Gauhati University | Guwahati, Assam, India | Nov 6, 2017 |
| Prof. Arun Goyal | *In vitro* synthesis of prebiotic isomalto-oligosaccharides in Mango and Pineapple juices using | Emerging Chemistry and Biology of Carbohydrates"(ECBC-2017) | Indian Institute of Technology Kharagpur, India | December 18-20, 2017 |

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| | dextransucrase from *Weissella cibaria* RBA12 | | | |
| Prof. S. S. Ghosh | Emergence of Cancer Nanotheranostics | Emerging Trends on Drug Design and Development-2018' (ETDDD-2018), | IIT(BHU) | January 18-20, 2018 |
| Dr. Ranjan Tamuli | 14th European Conference on Fungal Genetics (ECFG14) | Haifa, Israel | February 25-28, 2018 | International |
| Prof. S. S. Ghosh | Nanotheranostics: A new paradigm for targeted therapy and device | Translational Research on Natural Products for Therapeutic Uses | IASST Guwahati | 21st November 2017 |
| Prof. S. S. Ghosh | Cancer theranostics | National Symposium on drug delivery | NSIT, Delhi | 9th September 2017 |
| Dr. Pranjal Chandra | Development of Miniaturized Medial diagnostic Bio-sensing Prototypes | DBT Stake-holders Meeting to evolve a comprehensive Cancer Research program in NER | Guwahati | 26th – 27th October |
| Dr. Pranjal Chandra | Critical aspects in designing of electrochemical biosensors for their commercially viable applications In Refresher Course in Nano Science & Nano Technology | UGC-Human Resource Development Centre: Gauhati University | Guwahati University | 22nd March – 11th April, 2017 |
| Dr. Pranjal Chandra | Nanosensing strategies for point-of-care biomedical diagnostics | Expert Talk: North East Hill University | Shillong | 15-16 March 2018 |
| Dr. Debasish Das | Microalgae: Cell Factories for production of Bulk Chemicals and High Value Compounds | Himalaya Drug Company | Bengaluru | 11.01.2018 |
| Dr. Debasish Das | Microalgal Biotechnology and Production of Bulk Chemicals | String Bio Pvt. Ltd. | Bengaluru | 12.01.2018 |

**12. From Other Institutes / Universities / Organisations / Invited Lectures**
(**Only distinguished visitors invited by appropriate authority**)

| Name | Name of Inst./Univ./Org. | Purpose/ Name of Lecture | Date | Remarks |
|---|---|---|---|---|
| Prof. D. N. Rao | Department of Biochemistry, IISc Bangalore | A Fine Balance between Genomic Integrity and Diversity in Helicobacter pylori: Natural Transformation vis-à-vis Restriction-Modification Systems | 12th April 2017 | |
| Dr. Fardous F. El-Senduny | Biochemistry division, Chemistry Department, Mansoura University, Egypt | Approach for chemosensitization of chemotherapeutic-resistant cancer cells | 21st April 2017 | |
| Prof. Carlos M.G.A. Fontes | Faculdade de Medicina Veterinária, | Dynamic Versus Static Models of Cohesin-Dockerin Interaction | 2nd May 2017 | |

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| | Universidade de Lisboa, and NZYTech genes & enZYmes, Estrada do Paço do Lumiar, Lisboa, Portugal | | | |
| Dr.Sudip Mondal | University of Texas | High-resolution optofluidic platforms for three-dimensional imaging of C. elegans | 18th May 2017 | |
| Dr.Venuprasad K. Poojary | Baylor Institute for Immunology Research, Charles A. Sammons Cancer Center,Dallas, TX | Ubiquitination in the regulation of inflammation and cancer | 15th June 2017 | |
| Dr. Bhaswar Ghosh | Systems and Synthetic microbiology (SYNMIKRO) Max Planck Institute for Terrestrial Microbiology, Germany | A systems biology approach to understand feedback design in a cellular signaling system | 8th June 2017 | |
| Dr. Ashish Ganguly | Institute of Microbial Technology (IMTECH) Chandigarh | Basic Introduction to Bio-Molecular SAXS and Things which you CANNOT DO easily at synchrotron BUT AT HOME | 29th June 2017 | |
| Dr.Surendra Ghaskadbi | Developmental Biology, MACS-Agharkar Research Institute, Pune | Cell-cell signaling in hydra:Insights into evolutionarily ancient functions of signaling pathways | 12th July 2017 | |
| Dr. Gorachand Dutta, | Department of Mechanical Engineering, Michigan State University, USA | Ultrasensitive Enzyme-Free Self-Powered Engineered Device Based on Redox Cycling Amplification for Next Generation Point-of-Care Diagnostic Testing | September 13, 2017 | |
| Dr TJV Higgins | CSIRO Agriculture and Food, Canberra, Australia Professor, Science and Technology, Queensland University of Technology, Brisbane, Australia | Bt Cowpeas are protected against Maruca Podborers | 21st September 2017 | |
| Prof. U.N. Das | Founder and Director of UND Life Sciences, USA, | Dogmas about health and disease | 31st October 2017 | |
| Dr. Partho Sarothi Ray, | Department of Biological Sciences, Indian Institute of Science Education and Research (IISER), Kolkata | Signal Integration in Biological Systems: Combining Computational and Experimental Approaches to Decipher the Translation Regulatory Network Controlling p53 Expression in Response to DNA Damage | 28th November, 2017 | |

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| Dr. Sankar Basu | University of Delhi | he Globular-Disordered Interface in Proteins: Addressing Molecular Evolution from Protein Design | 8th December, 2017 | |
| Dr. Ana M. L. Sousa | University of Strathclyde,UK | Plant-based polyphenols coatings for surface functionalisation | 18th December, 2017 | |
| Dr. Rahul Roy | IISc Bangalore | Microdroplet technologies for single cell and single molecule analysis | 18th December, 2017 | |
| Dr. Aswani K Kancherla | John Hopkins University School of Medicine, USA | nderstanding protein function via structure, dynamics and interactions: Cono-peptides to Non-Ribosomal Peptide Synthetases | 23rd January 2018 | |
| Dr. Sonali Bhattacharjee | Cold Spring Harbor Laboratory, NY, USA | Investigating the nexus between DNA repair pathways and genomic instability in cancer | 25th January 2018 | |
| Dr. Jothir Pichaandi | University of Toronto and Fluidigm, Canada | Nanoparticle- Antibody Conjugates as High Sensitive Reagents for Mass Cytometry | 14th February 2018 | |
| Prof. K. V. Venkatesh | Dept. of Chemical Engineering, Dept. of Biosciences and Bioengineering, IIT Bombay | Systems Engineering Perspective of Human Metabolism through a Multiscale Model for Disease Analysis : A Cell to Human Framework | 9th March 2018 | |

**13. Seminars/Workshops/Conferences/Short-Term Courses Organised (Total no: 16)**

| Sl. No. | Name of Faculty (Convener/Co-ordinator, etc.) | Name of Sem./Wor./Con. | Funded By | Date | International/National | No. of participants |
|---|---|---|---|---|---|---|
| 1 | Dr. Ajaikumar B. Kunnumakkara (Coordinator) | Workshop on Recent Advances in Cancer Research, | Department of Biotechnology, Govt. of India | March 5-7, 2018. | National | 20 |
| 2 | Dr. Ajaikumar B. Kunnumakkara (Advisor) | International Conference on Trends in Biochemical and Biomedical Research: Advances and Challenges (TBBR-2018), BHU, India | …. | February 13-15, 2018 | International | 350 |
| 3 | Dr. Ajaikumar B. Kunnumakkara (Co-ordinator) | Stake holders brainstorm meeting for Cancer Research program in NER 2017 | Department of Biotechnology, Govt. of India | October 26-27, 2017 | National | 50 |
| 4 | Dr. Ajaikumar B. Kunnumakkara (Member: | 3rd International Conference on Natural Products Utilization: From | . | October 18-21, 2017 | International | 400 |

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| | Organizing Committee) | Plants to Pharmacy Shelf, Bansko, Bulgaria. | | | | |
| 5 | Dr. Ajaikumar B. Kunnumakkara (Organizing secretary) | 2nd “International Conference on Nutraceuticals and Chronic Diseases” Bogmallo, Goa, India | DBT, DST, ICMR | September 1-3, 2017 | International | 300 |
| 6 | Dr. Ajaikumar B. Kunnumakkara (Organizing secretary) | Indo-Japan Workshop on "Hope from Herbs: Research-based Care and Cure Potentials” IIT Guwahati, Assam, India | Department of Biotechnology, Govt. of India | May 8-9, 2017 | International | 80 |
| 7 | Dr Navin Gupta | Summer School in Neuroimaging IIIT Hyderabad | DST | 16-20 July 2017 | | 500 |
| 8 | Convener: Prof. R. Swaminathan, BSBE Dept.<br><br>Co-Convener: S. Maiti, TIFR, Mumbai | FCS2017: National Workshop on Fluorescence and Raman Spectroscopy | Tata Institute of Fundamental Research, Mumbai and the Fluorescence Society | 17 Dec to 21 Dec, 2017 | National | 150 |
| 9 | Prof. Latha Rangan | Sensitization Workshop On Technological Empowerment Of Women | National Academy of Sciences, Allahabad, India (NASI | 03-04 November 2017 | National | 120 |
| 10 | Dr Sachin kumar | An Introductory Workshop on "Diagnostic Approaches In Virology” | | March 6-7, 2018 | national | 30 |
| 11 | Dr Bithiah Grace Jaganathan | Workshop On Molecular Diagnostics In Onco-Haematology | North East Chapter of Indian Society of Hematology and Transfusion Medicine | 02.11.2017 | National | 26 |
| 12 | Prof. Swaminathan (Convener) and Dr. Shirisha Nagotu (Co-ordinator) | Advanced Imaging and Microscopy Techniques” | organized by DSS Imagetech Pvt Ltd, Olympus Medical Systems India Pvt Ltd & supported by | 18-04-2017 to 20-04-2017 | National | 25 |

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|---|---|---|---|---|---|---|
| | | | Indian Institute of Technology | | | |
| 13 | Prof. Lingaraj Sahoo | Hands on workshop on " Gene Expression and Functional Analysis for Crop Improvement" | DBT | 16th- 20th January 2018 | National | 15 |
| 14 | Prof Lingaraj Sahoo | Translational Agriculture – Avenues for International Cooperation" | Jointly organized by DBT Program support center, IIT Guwahati and Gifu University Japan | 29th March 2017 | International | 80 |
| 15 | Prof Lingaraj Sahoo (Co-cordinator) | Indo-Japan Bilateral Symposium on Future Perspective of Bioresource Utilization in North-Eastern Region | Jointly organized by IIT Guwahati and Gifu University, Japan | 01-04 Feb, 2018 | International | 180 |
| 16 | Dr Debasish Das (Organizing Secretary) | Bioprocessing India 2017 | NEC, DBT, DST, CSIR, ONGC, Reliance, Biojenik Engineering, Anthem Biosciences, Sartorius, Takara, Spectrochem Instruments Pvt. Ltd., Biocon | 9/12/2017-11/12/2017 | International | 330 |

**A brief report on the major NATIONAL and INTERNATIONAL events with photographs may also be given separately in addition to the format given above.**

**14. Patents:**

**No. of Patents Applied with details …7…….**

- Inventors: Vibin Ramakrishnan, Gaurav Pandey, Harshal B. Nemade, Jahnu Saikia, Sajitha S, & Nitin Chaudhary. Patent No. TEMP/E-1/25296/2017-KOL. Dated 13.07.2017

- Inventors: Senthilkumar Sivaprakasam, Baskaran Anand, Srikanth Katla, K.N.R. Yoganand; production of glycosylated human interferon alpha 2b in glycoengineered pichia pastoris. Granting Agency: Controller General of Patents, Designs & Trade Marks, The Patent Office, Kolkata; Application Number: E-2/21/2018/KOL; Date: 15 January 2018; Status: Patent Filed

- Inventors: Mukherjee, S., Das, G, and Ramesh, A. Indian Patent Application No. 201831001543. Title: Gastric fluid-resistant proteinaceous nanocomposite for mitigation of gastrointestinal pathogenic bacteria. Applied date: 13/01/2018.

- Iyer PK, Dey A, Singh A, Dutta D, Ghosh SS (2018). An ultra-low voltage operated organic field effect transistor (OFET) based bio-sensing system and a method for fabricating the same, Patent: 201831000478.

- Chattopadhyay A, Sailapu SK, Dutta D, Ghosh SS, Simon AT (2017). Wirelessly Operated LED Device for Photodynamic Therapy and Subsequent Monitoring Of Therapeutic Success, Application No: 201731031603.

- Debasish Das, Mayurketan Mukherjee, Saumya Ahlawat, Mehak Kaushal, Gargi Goswami. Improved culture media for butanol synthesis using *Clostridium acetobutylicum* ATCC 824. Date Applied/Granted-10/08/2017; Application No. 201731028507

- Debasish Das, Mehak Kaushal, Saumya Ahlawat Gargi Goswami. Method for production of biofuels by fermentation of a sugar bearing medium. Date Applied/Granted-18/01/2018; Application No. 201831002144

**No. of Patents Granted with details ……0…….**

| Sl. No. | Name of Faculty and co researcher | Name | Date Applied/Granted | Application No. | Remarks |
|---|---|---|---|---|---|

**15. Awards and honours (Only awards/honours at national/international level from reputed organisations)**

1) Das M and Kumar S (2017) "Independent evolution of genotype xiii Newcastle disease viruses from India: a panzootic threat" talk on the "National Seminar on Opportunities and challenges of translational research in the frontier areas of Animal Biotechnology and V Annual Convention of SVSBT". (SVSBT) at OUAT 23rd and 24th September (Best Oral Award).

2) Barnali Nath, Sachin Kumar (2017) "Improved Japanese encephalitis virus vaccine using recombinant Newcastle disease virus as a vector" VIROCON 2017, 26th National Conference of Indian Virological Society (IVS) at Nitte University, Mangalore, India, December 7- 9, 2017. (2nd best Poster Presentation, Medical Virology Section)

3) Kumar R, Kumar V, Kekungu P and Kumar S (2018) "Diagnostics and vaccine development of classical swine fever virus based on recombinant Newcastle disease viral vector" at the Indian Association of Veterinary Microbiologists, Immunologists and Specialists in Infectious Diseases (IAVMI) in Sri Venkateswara Veterinary University (SVVU), Tirupati. 29-31st Jan 2018. (Best poser award)

4) Latha Rangan, FNASc; Elected Fellow National Academy of Sciences Allahabad 2017

5) Prof V K Dubey: Elected as FRSB (Fellow, Royal Society of Biology, United Kingdom): 1-January 2018 onward.

6) Prof V K Dubey: Member, Board of Governors (April 2017 onward), The Biotech Research Society of India (BRSI).

7) Prof V K Dubey: Vice President , Bioinformatics and Drug Discovery Society [BIDDS] (July 2017 onward)

8) Prof V K Dubey: Prize for Biomedical Research Conducted in Underdeveloped areas–2016 by Indian Council for Medical Research, Government of India

9) Prof. Utpal Bora is honored with the Title of Vice President for the "Association for Promotion of DNA Fingerprinting and other DNA Technologies (ADNAT)" for the duration 2018 onwards.

10) Dr Surajbhan Sevda: Won international travel award from Shastri Indo- Canadian Institute to attend international conference in Canada.

11) Kusum K. Singh: DBT-NER Overseas Associateship

12) Dr Lalit Pandey: IEI Young Engineers Award 2017-2018 by Institution of Engineers (India) in Environment Engineering Discipline

13) Professor Pranab Goswami has received Outstanding Contribution in Reviewing Awarded in January 2018 in recognition of his Contributions made to the quality of the journal *Biosensors and Bioelectronics* by the Editors of *Biosensors and Bioelectronics, Elsevier, Amsterdam, The Netherlands*.

14) Professor Pranab Goswami was felicitated with Guest of Honor in the inaugural meeting of the workshop on Finishing School (19th -24th March 2018) by the organizing committee at Tezpur University.

15) Nominated as a member of Scientific Advisory Council (SAC) of IASST, Guwahati for tenure of 3 years (2017 to 2020).

16) Prof. Arun Goyal: "Excellence in Carbohydrate Research (ECR) Award-2017" by Association of Carbohydrate Chemists and Technologists, India, in recognition of outstanding contribution in the area of Structure and functions of carbohydrates

and carbohydrate enzymes. The Award carrying a plaque, certificate and a cash prize of Rs. 30000/- offered by Sunita Hydrocolloids Pvt. Ltd., Jodhpur, was conferred during CARBO-XXXII Conference at Indian Institute of Technology Kharagpur, Dec 18-20, 2017**.**

17) Prof. Arun Goyal: Elected as Executive member, Association of Carbohydrate Chemists and Technologists (India), ACCT (I) 18, Nov 2017 for two years.

18) Prof. Arun Goyal: Invited as "Member Expert Committee" of NER Twinning RnD program of NERBPMC, Nov 17, 2017.

19) Prof. Arun Goyal: DST Award for participation in 24th International Union of Crystallography Congress (IUCr2017), 21-28 August 2017, Hyderabad, India

20) Prof. Arun Goyal: Invited to chair a session in 7th International Forum on Industrial Bioprocessing (IFIBiop 2017), May 21-24, Wuxi, China.

21) Prof. Arun Goyal: Invited by DBT, Ministry of Science and Technology under Mission Innovation Program for "International Conference on Sustainable Biofuel 2018" on February 26-27, 2018 at New Delhi, India.

22) Prof. Arun Goyal: Invited as "Member Expert Committee" of NER Twinning RnD program of NERBPMC, Feb 19-20, 2018.

23) Dr Pranjal Chandra: Visiting Professor / Scientist at the Institute of Biophysio Sensor Technology, Pusan National University, South Korea, May – June 2017

**16. Students' Achievements:**

- Ishani Chakrabartty received 1st prize in Oral presentation during Indo-Japan Bilateral Symposium for Future Perspectives of Bioresource Utilization in North East India (IJBS'17) held at IIT Guwahati from 1st-4th February 2018 for her paper titled "*Alpinia nigra*: The unexplored ore of Zingiberaceae for future therapeutics". (Springer award included 200 Euros).

- Ishani Chakrabartty received 1st Prize in Best Poster Category in Translational Research on Natural Products for Therapeutic Uses (TRNPTU), held at IASST Guwahati on 21st November 2017 for her poster titled "Viability assessment of bacteria under the treatment of (E)-labda-8(17), 12-diene-15, 16-dial, a bioactive compound from the seeds of *Alpinia nigra*".

- Sajitha secures third position in oral presentation entitled "Hybrid Magnetic Organic –Inorganic Nanoadsorbents for Sequestration of Chromium" under the theme "Diverse applications", held at IIT Roorkee during 06-08 December 2017.
- Mr. Angshu Dutta (Roll No.: 166106020), a PhD student at the Department of Biosciences and Bioengineering, IIT Guwahati received BEST POSTER AWARD at Research Conclave – 2018, IIT Guwahati.

- Ms. Prerana Gogoi (Roll No.: 126106035) a PhD student at the Department of Biosciences and Bioengineering, IIT Guwahati received BEST POSTER AWARD at National Seminar on Crystallography (NSC-45), IIT (BHU) Varanasi, India.
- Hasnahana Chetia and Debajyoti Kabiraj won partial scholarship to attend Nextgen Genomics, Biology, Bioinformatics & Technology Conference at Bhubaneswar, Odisha (NGBT, October 2-4, 2018).

- Best Oral Presentation Award received by Devivasha Bordoloi at the International Conference on Trends in Biochemical and Biomedical Research, Varanasi, India, February 13-15, 2018.

- Best Poster Presentation Award received by Ganesan Padmavathi at the 7th International Conference on Translational Cancer Research, Chennai, India, February 8-11, 2018.

- Best Oral Presentation Award received by Devivasha Bordoloi at the 5th AIST International Imaging Workshop held at Biomedical Research Institute, Tsukuba Science city, Japan, January 21-30, 2018.

- Best Oral Presentation Award received by Javadi Monisha at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017.

- Best Poster Presentation Award received by Nand Kishor Roy at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017.
- Best Oral Presentation Award received by Ganesan Padmavathi at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017.
- Best Oral Presentation Award received by Devivasha Bordoloi at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017.
- Best Poster Presentation Award received by Anuj Kumar Singh at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017
- Best Poster Presentation Award received by Bethsebie Lalduhsaki Sailo at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017
- Best Poster Presentation Award received by Amrita Khwairakpam Devi at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017
- Best Poster Presentation Award received by Kishore Banik at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017
- Best Oral Presentation Award received by Harsha Choudhary at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017.
- Best Poster Presentation Award received by Shabnam Bano at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017
- Best Poster Presentation Award received by Shubhrajyoti Das at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017
- Best Poster Presentation Award received by Minakshi Sarma at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017
- Best Poster Presentation Award received by Mayur Chhoriya at the International Conference on Nutraceuticals and Chronic diseases 2016 (INCD-2016), Goa, India, September 1-3, 2017
- K N R Yoganand, a PhD student in BSBE, won prize for Best Oral Presentation in Research Conclave 2018, IIT Guwahati
- Ms. G. Janani (PhD student, 2015) selected for prestigious Fulbright Nehru Doctoral Research Fellowship 2018. Janani will be visiting USA for 09 months (starting July 2018) and pursued research work at McGowan Institute, Pittsburg University with Prof. Stephen Badylak on “Bioartificial Liver”.
- Ms. Shreya Mehrotra (PhD student, 2013) awarded prestigious Fulbright Nehru Doctoral Research Fellowship 2017. Shreya visiting USA for 09 months (September 2017-June 2018) and pursued research work at MIT-Harvard University with Prof. Ali Khademhosseini on “Bioartificial Cardiac Patch”.
- Mr. Prerak Gupta (PhD student, 2013) awarded prestigious Fulbright Nehru Doctoral Research Fellowship 2017. Prerak visiting USA for 09 months (September 2017-June 2018) and pursued research work at Pittsburg University with Prof. David Vorp on “Bioartificial Blood Vessels”.
- Best Innovation Award to Bibhas K. Bhunia at Assam Biotech Conclave, organized by Guwahati Biotech Park. 2017
- Best Innovation Award to Dimple Chauhan at North-East Biostart- Innovation and talent search contest, organized by Guwahati Biotech Park.
- Rishikesh Shukla: Young Scientist Award, SBCI: Received Young Scientist Award at 86th Annual Meeting of Society for Biological Chemists, India, Nov. 16-19, 2017 Jawaharlal Nehru University, New Delhi, India.
- Arun Dhillon: Best Poster Award: Rgl-CBM35 of family 35 Carbohydrate Binding Module (CBM) from Clostridium thermocellum represents first CBM targeting rhamnogalacturonan I and mediating binding by two sites. 23rd INPEC (International Network of Protein Engineering Centers) Meeting Protein Structure, function and Engineering, 9-11 Nov 2017, Bose Institute, Kolkata.

- Neha Arora, Student Travel Award for Poster presentation, 5th Nano Today Conference, PEGylated Silver Nanoclusters Mediated Cytosolic Delivery of Tumor Suppressor Protein PTEN to Modulate in vitro Cellular Signalling, 6th December 2017.
- Neha Arora, ACS Poster presentation Award, ICANN IIT Guwahati, Understanding Therapeutic Potential of PEGylated Silver Nanoclusters Loaded Recombinant PTEN, 19th December 2017
- Deepanjalee Dutta, Indian Society of Nano medicine-BC best poster award, NanoBioteck'17 Trivandrum, Bimetallic Au–Ag Nanoclusters embedded Cationic BSA nanocarrier for Bioimaging and Suicide gene therapy of HeLa cancer cells, 8th December 2017
- Deepanjalee Dutta, RSC Poster Award for poster presentation, ICANN IIT Guwahati, Bimetallic Au–Ag nanoclusters embedded nanocarrier for bioimaging and suicide gene therapy of HeLa cancer cells, 19th December 2017
- Deepanjalee Dutta, Best Research Proposal (2ND Position), Smartphone based portable device for photodynamic therapy and colorimetric assays, North East Biostart 2018, Guwahati Biotech Park, 5th April 2018.
- Payel Sarkar achieved Best Poster award (Metabolic Engg and Systems Biology) at Bioprocessing India 2017 held at IIT Guwahati.
- Mayurketan Mukherjee achieved Best Poster award (Biofuels and Bioenergy) at Bioprocessing India 2017 held at IIT Guwahati.
- Avishek Roy, a Ph D student, received Best Poster Presentation Award for the poster presentation titled " Role of calcineurin B (CNB-1) RIP mutants in stress tolerance, circadian rhythm and probable interaction with calcium proton exchanger (CAX) regulating cell functions in *Neurospora crassa*" by Roy A and Tamuli R, at the National Conference on Fungal Biology: Recent Trends and Future Prospects and 44th Annual meeting of the Mycological Society of India (MSI), University of Jammu, Jammu, India, November 16-18, 2017.
- Christy Noche K Marak, a Ph D student, received Best Poster Presentation Award for the poster presentation titled " Calmodulin and calcium/calmodulin dependent kinases are important for normal growth and development in *Neurospora crassa*" by Marak K CN and Tamuli R, at the Research Conclave, IIT Guwahati, India, March 8-11, 2018.
- Darshana Baruah, a Ph D student, received Best Poster Presentation Award for the poster presentation titled "Understanding the role of PLC-δ, $sPLA_2$ and CPE-1in regulating various cellular processes in *Neurospora crassa*" by Baruah D and Tamuli R, at the Research Conclave, IIT Guwahati, India, March 8-11, 2018.
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**17. Any Other (Special Mention)**

- Dr. Ajaikumar B. Kunnumakkara :Executive Secretary: Society for Nutraceuticals and Chronic Diseases
- Dr. Ajaikumar B. Kunnumakkara :Executive committee member: Society for Translational Cancer Research
- Dr. Ajaikumar B. Kunnumakkara :Coordinator: DBT-AIST International Laboratory for Advanced Biomedicine (DAILAB) at IIT Guwahati
- Dr. Ajaikumar B. Kunnumakkara: Three students from my laboratory Devivasha Bordoloi, Harsha Choudhary and Padmathi Ganesan was selected for a training program at Biomedical Research Institute, AIST Japan during January 20-30, 2018.
- Prof. Pranab Goswami served as PhD thesis examiner at Department of Chemistry, Gauhati University.
- Prof. Pranab Goswami served as PhD thesis examiner at Department of Biotechnology, NIT Raipur.
- Dr. Pranjal Chandra served as PhD thesis examiner of School of Material Science and Engineering at the Indian Institute of technology (BHU), Varanasi, India
- Laxmi V, Tamuli R (2017). Calmodulin is necessary for vegetative growth, ultraviolet survival, and sexual development in the model filamentous fungus *Neurospora crassa*. *Arch Microbiol. 2017 May.*

  http://atlasofscience.org/

**18. Faculty Members (In alphabetical order according to <u>surname</u>)**

| Sl. No. | Name | Name of the University/Institute/Org PhD degree received from | Designation | Areas of Interest | Date of joining (Not Internal Promotion) for the faculty members who joined during the reporting year |
|---|---|---|---|---|---|
| 1 | B. Anand | Indian Institute of Technology Kanpur, Kanpur | Associate Professor | Structural Biology, Bioinformatics & Computational Biology, RNA Biology, Molecular Evolution and Synthetic Biology | 25-02-2010 |
| 2 | Bora Utpal | Institute of Genomics and Integrative Biology, Delhi | Professor | Biomedical Engineering, Biodiversity and Bio-entrepreneurship | 22-12-2004 |
| 3 | Bose Biplab | All India Institute of Medical Sciences | Associate Professor | Systems Biology, Cell signaling, Recombinant therapeutics | 30-06-2006 |
| 4 | Chanda Souptick | Indian Institute of Technology Kharagpur, India | Assistant Professor | Biomechanics, implant design and optimization, surgical simulations and soft computing | 02-05-2017 |
| 5 | Chandra Pranjal | Pusan National University, Busan, South Korea | Assistant Professor and Ramanujan Fellow | Clinical Diagnostics (Cancer cells, DNA, RNA, bio-markers), Nano-biosensors (Aptamer, antibody, enzyme) based biological phenomenon investigation, Porous silicon based label free self reporting optical nanosensors, Microfluidics and Nanomachines. | 21-07-2015 |
| 6 | Chaturvedi Rakhi | University of Delhi, Delhi | Professor | Plant Cell, Tissue & Organ Culture, Protoplast Isolation and Regeneration, Isolation, Purification and Characterization of Plant Secondary Metabolites | 17-06-2004 |
| 7 | Chaudhary Nitin | CSIR-Centre for the cellular and Molecular Biology, Hyderabad | Associate Professor | Peptide self-assembly and amyloid aggregates, Peptide-membrane interactions Curvature inducing proteins | 28-03-2011 |
| 8 | Das Debasish | Indian Institute of Technology Bombay | Associate Professor | Metabolic engineering, Biochemical engineering, | 17-02-2010 |

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| | | | | Modelling of fermentation process, Biofuel | |
| 9 | Dasu V. Venkata | Indian Institute of Technology Madras | Professor | Bioprocess Development, Metabolic Engineering | 22-07-2004 |
| 10 | Dubey Vikash Kumar | Banaras Hindu University | Professor | Biochemistry, Molecular Parasitology, Drug Discovery | 25-09-2006 |
| 11 | Ghosh Siddhartha S. | Indian Institute of Chemical Biology (IICB), Kolkata | Professor | Cancer Gene Therapy, Nanobiotechnology, Molecular Pathways Involving Drug Resistance | 10-03-2003 |
| 12 | Goswami Pranab | Gauhati University | Professor (HAG) | Biosensors and Biofuel cells | 16-12-2002 |
| 13 | Goyal Arun | Indian Institute of Technology Kanpur, Kanpur, India | Professor and Former Head | Molecular Biology, Protein Engineering, Structural and Functional Proteomics of Carbohydrate active enzymes and other industrially important microbial enzymes | 25-08-2003 |
| 14 | 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 | 23-01-2017 |
| 15 | Jaganathan Bithiah G. | Johann Wolfgang Goethe University, Frankfurt, Germany | Associate Professor | Stem Cell Biology, Cancer signaling | 15-01-2009 |
| 16 | Kanaujia Shankar Prasad | Indian Institute of Science Bangalore | Associate Professor | Structural Biology and Bioinformatics Studies | 23-04-2012 |
| 17 | Kumar Manish | University of Maryland, College Park, USA | Associate Professor | Molecular interaction of host-pathogen-vector of infectious diseases | 25-06-2012 |
| 18 | Kumar Sachin | University of Maryland, College Park, USA | Associate Professor | Molecular biology of paramyxoviruses | 24-04-2012 |
| 19 | Kunnumakkara A. B. | University of Calicut, Kerala | Associate Professor | Role of inflammatory pathways in cancer development, Identification of novel biomarkers for cancer diagnosis and prognosis, Cancer drug discovery, Development of transgenic and gene knockout mouse models for biomedical research | 01-08-2012 |
| 20 | Limaye Anil Mukund | Indian Institute of Science Bangalore | Associate Professor | Hormonal regulation of gene expression | 17-11-2008 |
| 21 | Maiti Soumen Kumar | Indian Institute of Technology Bombay | Assistant Professor | Bioprocess Engg, biofuel | 18-03-2014 |
| 22 | Mandal Biman B | Indian Institute of Technology Kharagpur | Associate Professor | Cell based tissue engineering, Biomaterials, | 31-05-2011 |

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| | | | | Stem cells, Drug delivery systems | |
| 23 | Nagotu Shirisha | University of Groningen, Groningen, The Netherlands | Assistant Professor | Organelle biology and Inter-organelle communication, Cellular Ageing, Membrane fission and fusion | 23-07-2015 |
| 24 | Pakshirajan Kannan | Indian Institute of Technology Madras | Professor | Environmental Technology | 12-07-2004 |
| 25 | Pandey Lalit Mohan | Indian Institute of Technology Delhi | Assistant Professor | Surface and interfacial science particularly in the area of Bio-interfaces and Biomaterials Protein's adsorption and aggregation, Environmental Biotechnology | 19-03-2014 |
| 26 | Patra Sanjukta | Central Food Technological Research Institute, Mysore | Associate Professor | Enzymes - applications in pharma and food industry | 01-10-2007 |
| 27 | Ramesh Aiyagari | CFTRI, Mysore (Degree awarded by Mysore University) | Professor | Nanobiotechnology, Chemistry-Biology Interface for Developing Antibacterials and Sensors | 06-01-2003 |
| 28 | Ramakrishnan Vibin | Indian Institute of Technology Bombay | Associate Professor | Computational Biology, Bioinformatics, Biophysics, Bio-Organic Chemistry, Bio-nanotechnology | 12-07-2011 |
| 29 | Rangan Latha | University of Madras (Research work carried at IRRI, Manila) | Professor | Molecular systematics, Biofuel, IPR | 29-11-2004 |
| 30 | Sahoo Lingaraj | Maharshi Dayanand University, Rohtak, India | Professor | Genetic engineering and functional genomics of plants | 23-12-2002 |
| 31 | Saini Gurvinder Kaur | Andhra University, Visakhapatnam | Professor | Fungal Biotechnology, Biological Control, DNA fingerprinting and Transformation studies, Studies on extracellular enzymes and toxic metabolite production, Development of a potent biopesticide | 17-12-2002 |
| 32 | Satpati Priyadarshi | Indian Institute of Science Bangalore | Assistant Professor | Classical molecular dynamics (MD) free energy simulation, Electronic Structure calculations that predict the structure, properties, reactivity, bonding etc. of small molecules | 01-06-2015 |
| 33 | Selvaraju Narayanasamy | Indian Institute of Technology Madras, India | Assistant Professor | Environmental Biotechnology, Bioprocess Engineering, Biochemical Engineering | 24-04-2017 |

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| 34 | Senthilkumar S | Central Leather Research Institute, Chennai | Associate Professor | Biocalorimetry, BioPAT, Real-time monitoring and control of bioprocess systems | 15-06-2011 |
| 35 | Singh Kusum K | Institute of Molecular Medicine, Heinrich-Heine University of Duesseldorf, Germany | Assistant Professor | Post-transcriptional gene regulation by RNA binding Proteins | 13-07-2015 |
| 36 | Swaminathan Rajaram | Tata Institute of Fundamental Research, Mumbai | Professor | Intrinsically Disordered Proteins, Protein Aggregation | 16-04-1999 |
| 37 | Tamuli Ranjan | CSIR-Centre for the cellular and Molecular Biology, Hyderabad | Associate Professor | Calcium signaling, Genetics, DNA repair | 26-12-2008 |
| 38 | Rajkumar P. Thummer | University of Groningen, Groningen, The Netherlands | Assistant Professor | Stem Cell Engineering and Regenerative Medicine | 23-07-2015 |
| 39 | Trivedi Vishal | Central Drug Research Institute, Lucknow | Associate Professor | Intracellular Signaling in Plasmodium falciparum | 13-07-2009 |

FCS 2017 was organized by the BSBE Department at IIT Guwahati with support from Tata Institute of Fundamental Research, Mumbai and the Fluorescence Society (Convener: Prof. R. Swaminathan)

Snapshot of sensitization workshop on technological empowerment of women
(Convener: Professor Latha Rangan)

An Introductory Workshop on "Diagnostic Approaches in Virology" (Convener: Professor Sachin Kumar)

Indo-Japan Symposium on “Hope from Herbs: Research Based Care and Cure Potentials” and Inauguration of DBT AIST International Laboratory for Advanced Biomedicine (DAILAB); May 8-9, 2017 (Organizing secretary: Dr. Ajaikuamr B Kunnumakkara)

International Conference on Nutraceuticals and Chronic Diseases- 2017 (INCD-2017); September 1-3, 2017 (Organizing secretary: Dr. Ajaikuamr B Kunnumakkara)

Stakeholders Brainstorming Meeting for Cancer Research Program in NER 2017; October 26-27, 2017 (Co-ordinator: Dr. Ajaikuamr B Kunnumakkara)

Recent Advances in Cancer Research-2018 (RACR-2018); March 5-7, 2018 (Coordinator: Dr. Ajaikuamr B Kunnumakkara)